Verus

PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

MARCH 2023

Active Management Environment

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Verus

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The active management environment

Our work on active management addresses some shortfalls of the traditional analysis, which uses the median product to describe the active management universe as a whole.

These improvements and insights have allowed us to better understand product behavior and may allow for more informed selection in the future. For first time readers, an introduction to our active-management research and methodological details can be accessed by visiting https://www.verusinvestments.com/active-management-environment-supporting-material-2/ . For those familiar with the new approach, please read on.

— Even without skilled selection, there are many cases where active management may help investors achieve better portfolio outcomes in risk and return terms.

— Those better portfolio outcomes may come from additional return or lower risk. Not all investors have the same definition of better outcomes, and the risk/return trade-offs vary by universe.

— Adding skilled selection to the process may add additional value in portfolio construction.

— Fees remain an important part of the active management conversation. Fees and survivorship bias should be taken into account when analyzing active universes.

Using median product (median manager) performance to decide whether active management is beneficial can be misleading. This new tool can help investors make more-informed decisions.

What changed for 2023?

— The past year has been incredibly challenging for investors, as inflation spiked to four-decade highs in many developed economies, forcing their respective banks to pursue tight monetary policies. Additionally, Russia's invasion of Ukraine and China's "Zero Covid" policy placed further strain on global growth and supply chains. These risks, combined with rapid economic tightening cycles, resulted in very poor total performance from both equity and fixed income markets. Diversified portfolios experienced unusually large losses as fixed income failed to protect assets during the down market.

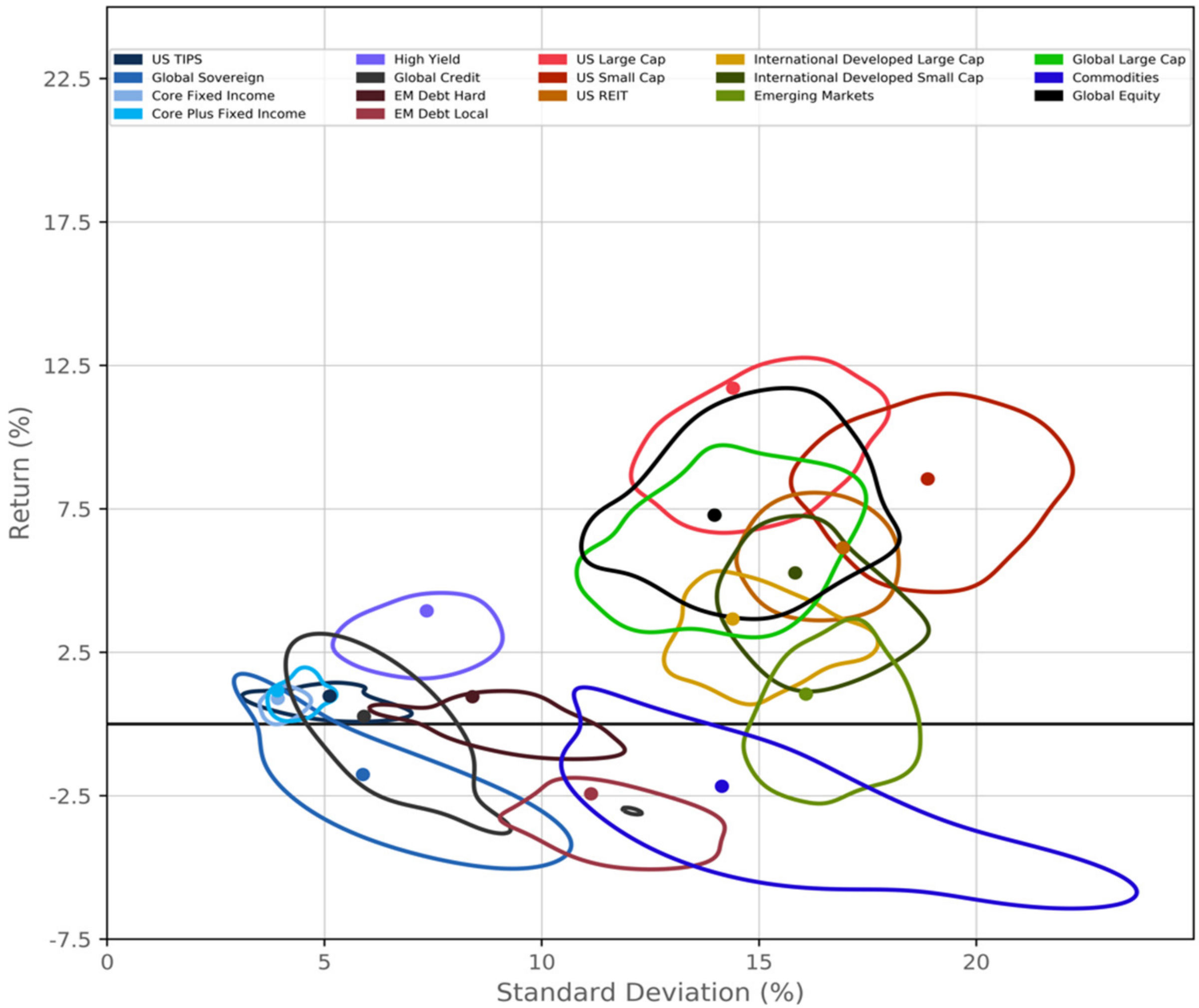
— The difficult market environment dragged performance lower across almost all asset classes. This is apparent in each active management universe chart—many of which fell below a 0% total return. Longer-term 7- and 10-year universe returns were less affected by this one-year change. Large losses had a particularly notable impact on fixed income asset classes, including the worst year on record for the Bloomberg U.S. Aggregate.

— However, the wider dispersion in markets appears to have improved the ability of active managers to add value for investors. Many universe charts over the past 3-year period illustrate that a greater proportion of active managers were able to successfully generate excess returns. It is likely that continued uncertainty in markets results in an attractive environment for skilled active managers to outperform benchmarks.

— The recent greater dispersion of performance across securities is evidenced by larger "ovoid" charts over the 3-year period. A challenging market environment and economic uncertainty has contributed to larger differences in the performance of active managers.

The true investment opportunity set

RISK-RETURN REGIONS ACROSS ASSET CLASSES: 10-YEAR RESULTS



This represents 10-year product performance data and 75% contour areas.
Source: eVestment, Verus, as of 9/30/22. Universe returns have been adjusted for fees and survivorship bias.

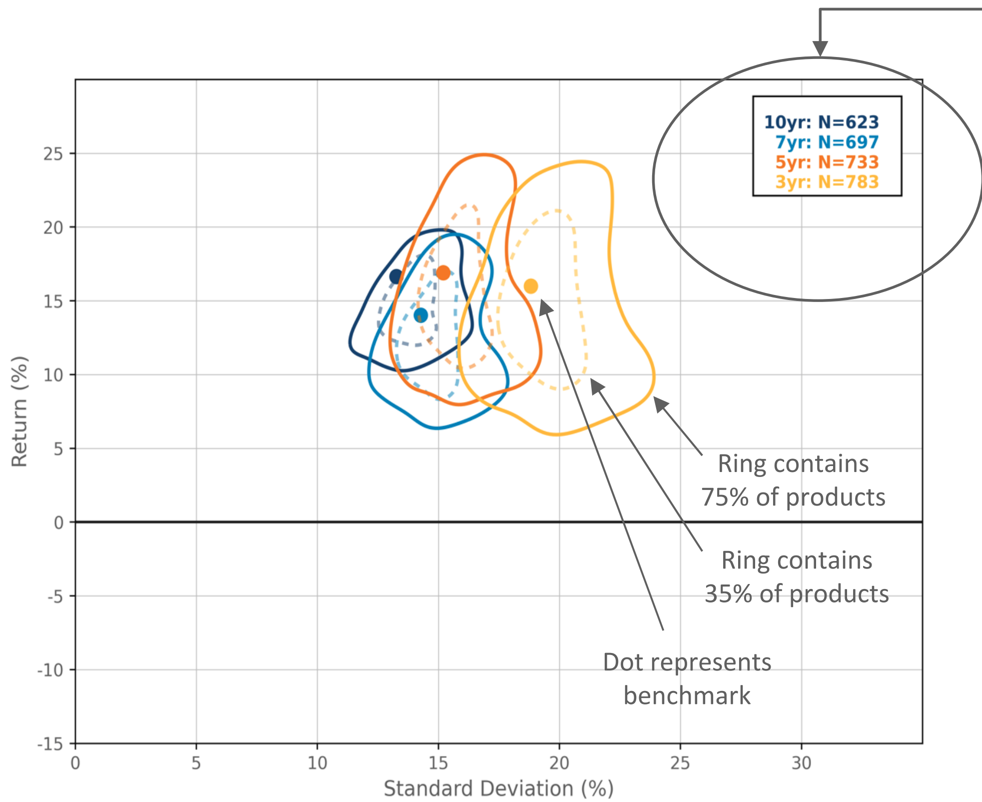
Investors often think of the investment opportunity set as a risk-return chart, in the form of single-point (dot) benchmark risk and return, and possibly single-point median product to represent active management.

However, active management universes in each asset class often have wide distributions and this traditional analysis misses the true universe characteristics. Much of the risk-return surface between -6% and 13% return and between 3% and 23% volatility is covered by various asset class options, and many parts of this space are covered by multiple active management universes.

In this year's edition, readers may notice that the effects of bond duration (interest rate sensitivity) has dragged the performance of fixed income asset classes lower—many into negative territory over the past ten years—following the sharp rise of interest rates around the world.

How to read a universe chart

The movement of the universe, the change in shape, and the change of size, all provide information about product behavior.



The number of products included in the analysis provides insight into the robustness of the analysis.

The position of the benchmark relative to the universe may also change through time, representing dynamic structure changes.

Throughout this report, each asset class universe chart is placed at the same position on the page, at the same size, and with the scales of the axes identical. This allows for easy comparison between universes.

Asset class environments

Note: *Universes are defined at the broadest level. Products vary in terms of style and/or treatment of currency exposure. Equity universes include both value and growth styles. International universes may include both products that hedge currency exposure and products that do not hedge currency exposure.*

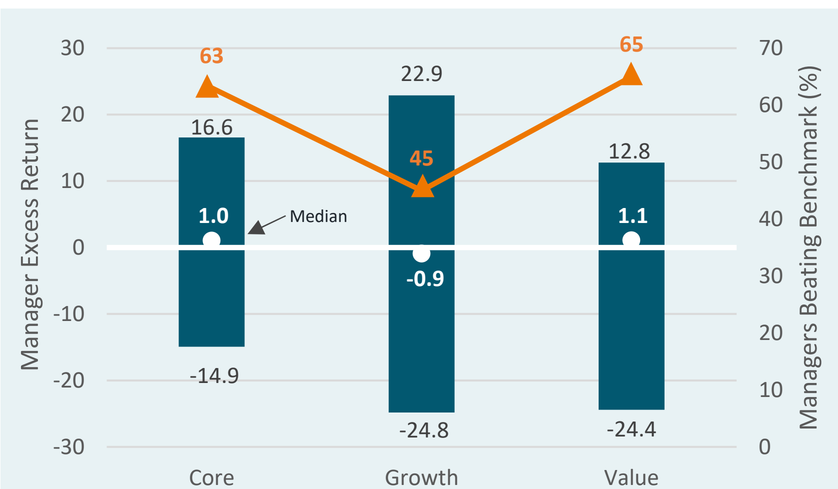
Equities – U.S. large cap

— The data suggest that U.S. large cap equity has been a reasonably efficient asset class. Over longer time periods, an extended environment of low interest rates (until recently) resulted in a dampening of earnings volatility and likely contributed to a more challenging environment for active managers. That said, as we observed over the most recent trailing 3-year time period, active managers have been able to generate more favorable results.

— The data indicates that some managers have been able to generate superior risk-adjusted return, especially over shorter time periods; however, most appear to have increased risk exposure in efforts to outperform their respective benchmarks. Looking at the 7- and 10-year trailing time periods, the relationship between increased volatility and achieving additional return does not appear to be a strong one.

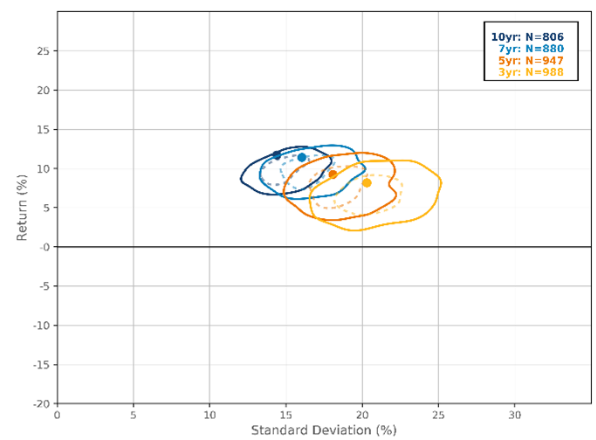
— Year-to-date through September 30, 2022, the environment was mixed for large cap managers. The median excess return for core and value managers was 1.0% and 1.1%, respectively, with more than 60% of the managers in each segment posting positive excess return over the period. On the other hand, growth managers posted a median excess return of -0.9%, with only 45% of the cohort outperforming the benchmark.

U.S. LARGE CAP UNIVERSE – YTD EXCESS RETURNS



Source: eVestment, as of 9/30/22, gross of fees

U.S. LARGE CAP

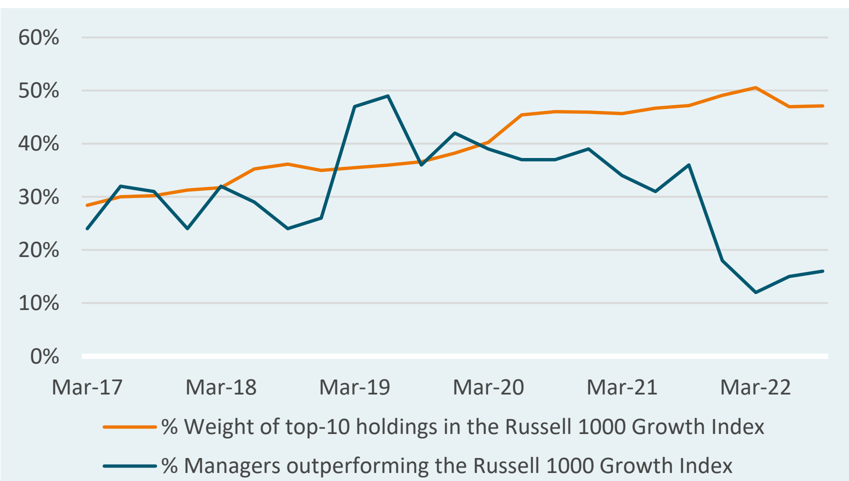


Source: eVestment, as of 9/30/22. Universe returns have been adjusted for fees and survivorship bias. Benchmark displayed is the S&P 500 Index

Equities – U.S. large cap growth

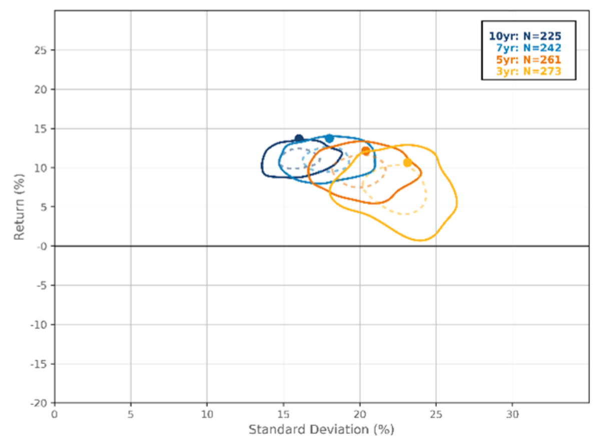
- Relative to the broad U.S. large cap universe presented on the previous page, data suggests that the growth cohort of the large cap universe has struggled to outperform the index. That said, we observed that some active managers have been able to generate more favorable results over the more recent trailing 3-year period.
- Similar to the broad U.S. large cap universe, looking at longer time periods, the relationship between increased volatility and achieving additional return does not appear to be a strong one.
- As the chart on the left illustrates, the Russell 1000 Growth Index has become increasingly concentrated over the past several years. In early 2017, the ten largest constituents in the benchmark accounted for less than 30% of the index's weight. By 2022, the benchmark's top-10 share grew to 47%, after exceeding 50% earlier in the year. Apple and Microsoft alone account for more than 20% of the index's weight. Over roughly the same time period, the percentage of large cap growth managers outperforming the benchmark has declined considerably, from a high of 49% in 2019 to a low of 12% in 2022.

BENCHMARK CONCENTRATION & MANAGER OUTPERFORMANCE



Source: eVestment & MSCI BarraOne, as of 9/30/22, 3-year rolling performance gross of fees

U.S. LARGE CAP GROWTH



Source: eVestment, as of 9/30/22. Universe returns have been adjusted for fees and survivorship
Benchmark displayed is the Russell 1000 Growth Index

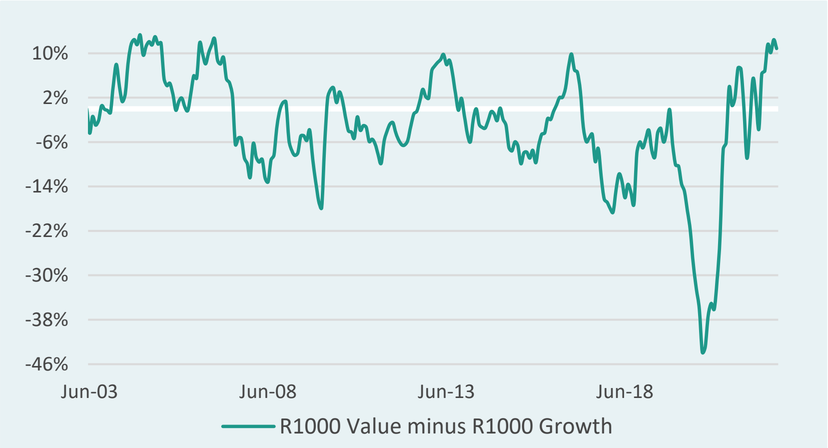
Equities – U.S. large cap value

— Relative to the broad U.S. large cap universe, data suggests that the value cohort of the large cap equity universe has been more successful in generating positive excess returns. In particular, we observed the trailing 3- and 5-year periods as being the most favorable for active large cap value managers.

— Compared with their growth counterparts, the data indicates that large cap value managers have been more successful in outperforming their benchmarks in terms of *risk-adjusted* returns, especially over shorter trailing time periods. In addition, in contrast to large cap growth, it appears a significant number of value managers have successfully turned above-benchmark volatility into a performance advantage, with the trailing 3-year period being the most notable.

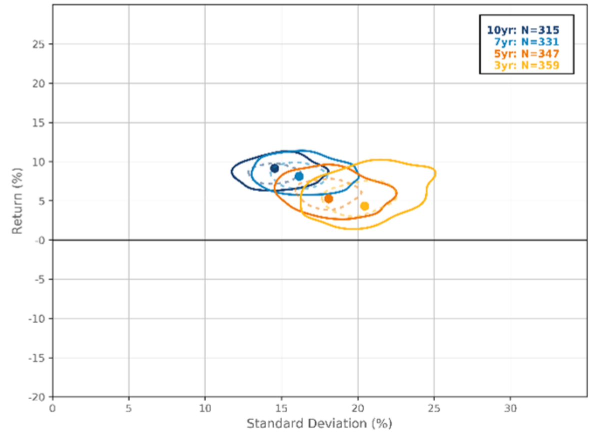
— As depicted in the chart on the left, as rising interest rates have dampened the outlook for companies with long-duration cash flows, value has staged a dramatic rebound of late, meaningfully outperforming growth for the first time since the middle of the last decade.

U.S. LARGE CAP VALUE VS U.S. LARGE CAP GROWTH (YOY)



Source: FTSE, as of 9/30/22

U.S. LARGE CAP VALUE

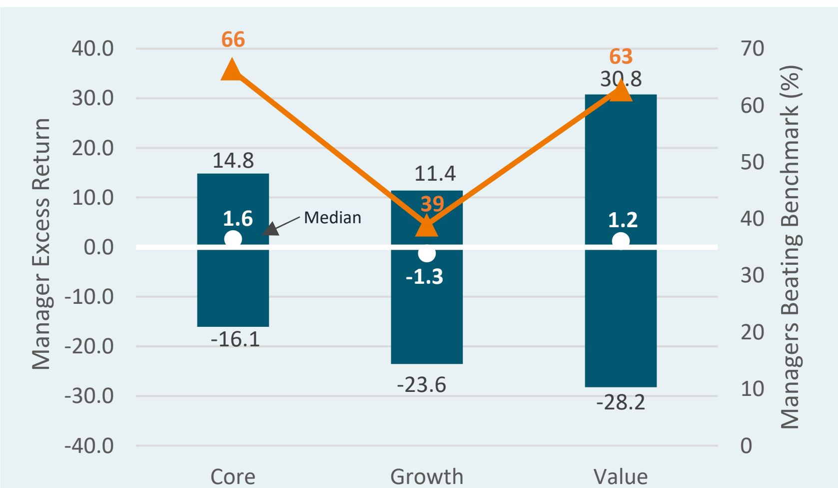


Source: eVestment, as of 9/30/22. Universe returns have been adjusted for fees and survivorship bias. Benchmark displayed is the Russell 1000 Value Index

Equities – U.S. small cap

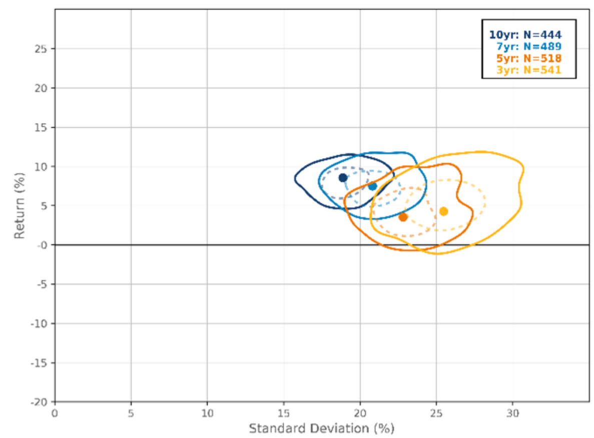
- Relative to their larger-cap counterparts and over most time periods, the evidence suggests that U.S. small cap managers have been more successful in generating meaningful excess return. In addition, on a risk-adjusted basis, U.S. small cap managers appear to have done so more efficiently than their counterparts in the U.S. large cap space. In general, active management appears to have been more beneficial in this space, in comparison to the large cap universe.
- Similar to the broad large cap universe, the evidence suggests that more recent trailing time periods (i.e., 3- and 5-year) have been more favorable to active small cap manager outperformance.
- Year-to-date through September 30, 2022, the active management environment for small cap managers appeared similar to large cap, with the median core and value managers outperforming their respective preferred benchmarks on a gross-of-fee basis. Like the large cap universe, small cap growth managers as a group struggled to outperform their benchmark, with only 39% of the cohort generating positive excess return.

U.S. SMALL CAP UNIVERSE – YTD EXCESS RETURNS



Source: eVestment, as of 9/30/22, gross of fees – triangle represents % of managers beating the benchmark

U.S. SMALL CAP



Source: eVestment, as of 9/30/22. Universe returns have been adjusted for fees and survivorship bias. Benchmark displayed is the Russell 2000 Index

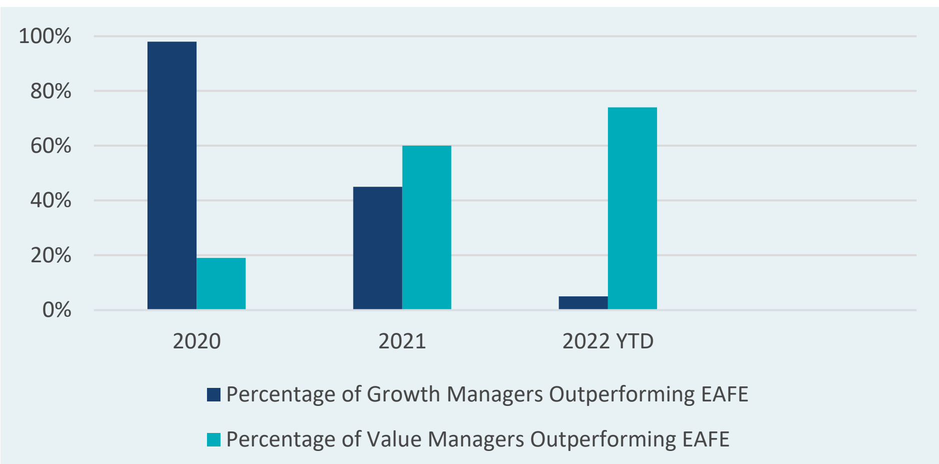
Equities – International developed

— The latest three years have seen a dramatic reversal of fortune for growth and value investment approaches, as illustrated by the bottom left chart. In 2020, the pandemic and subsequent easing of policy favored growth managers, and 98% of growth products outperformed the MSCI EAFE Index, while only 19% of value products managed to do the same. By 2022, rising interest rates and market conditions benefited energy and materials sectors which was favorable to value managers. Of value managers, 74% outperformed the index while only 5% of growth managers outperformed.

— The bottom right chart reflects a generally weak relationship between incremental risk-taking and incremental return among non-U.S. developed equity managers. For the 3-year and 5-year periods, managers taking more risk than the benchmark represented slightly more than half of the universe. The latest five years have been challenging for international developed equity managers with a significant portion of the universe producing negative absolute performance in addition to negative excess return relative to the benchmark.

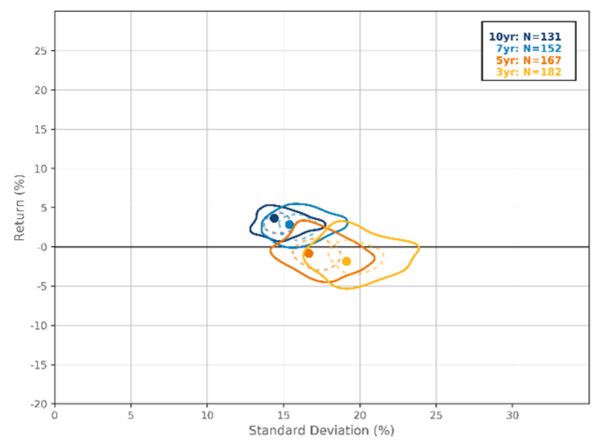
— Longer time periods reflect the performance challenges for international developed equity managers, with the proportion of the universe exceeding the benchmark over 7-year and 10-year periods considerably smaller than the proportion underperforming. The volatility in more recent years has presented opportunities for active managers to add value, and an approximately equivalent percentage of managers outperformed as underperformed.

INTL. DEVELOPED EQUITY PERFORMANCE – VALUE AND GROWTH



Source: eVestment, as of 12/12/22

INTERNATIONAL LARGE CAP



Source: eVestment, as of 9/30/22. Universe returns have been adjusted for fees and survivorship bias. Benchmark displayed is the MSCI EAFE Index

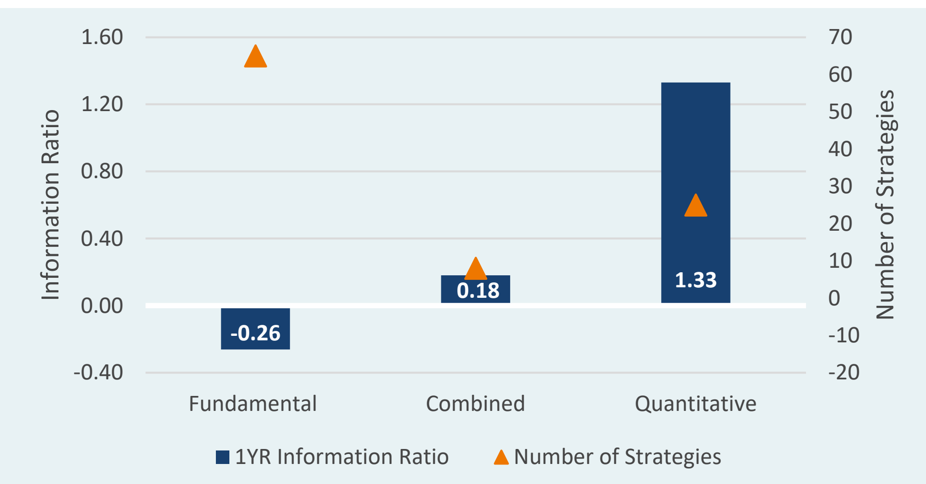
Equities – International developed small cap

— The international developed small cap universe has experienced materially higher volatility with a wider distribution of outcomes over the last three years, relative to a longer lookback. This wide, even, and circular dispersion around the MSCI EAFE Small Cap benchmark implies higher market volatility over the 3-year period, and suggests that the benchmark is a reasonable representation of the universe.

— The 7- and 10-year trailing periods reflect lower volatility and higher absolute levels of return; however, a majority of active managers in the universe have failed to outperform the benchmark. Most managers appear to take more risk than the benchmark, despite the weak relationship between incremental risk taking and incremental reward in the universe, as evidenced by the lower right chart.

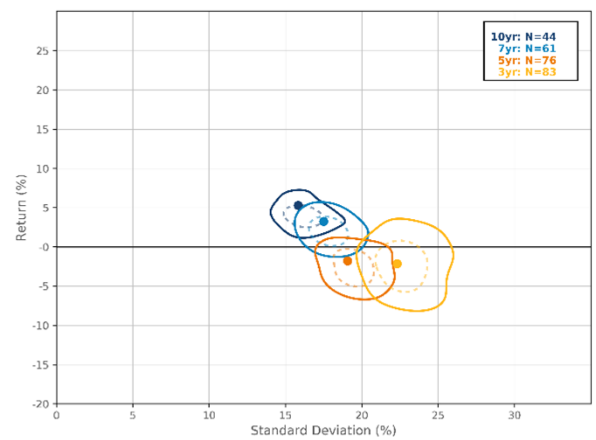
— The international developed small cap universe consists predominately of fundamentally managed, bottom-up strategies. Quantitative and combined investment approaches make up approximately one third of the total universe. Quantitative managers exhibited superior risk-adjusted performance over the trailing 1-year period, generating an average information ratio of over 1.3. This is, in part, due to the recent strength of the value factor and the preponderance of systematic strategies to apply some concern for valuation.

AVERAGE 1-YEAR INFORMATION RATIO BY INVESTMENT APPROACH



Source: eVestment as of 9/30/22, gross of fees

INTERNATIONAL SMALL CAP



Source: eVestment, as of 9/30/22. Universe returns have been adjusted for fees and survivorship bias. Benchmark displayed is the MSCI EAFE Small Cap Index

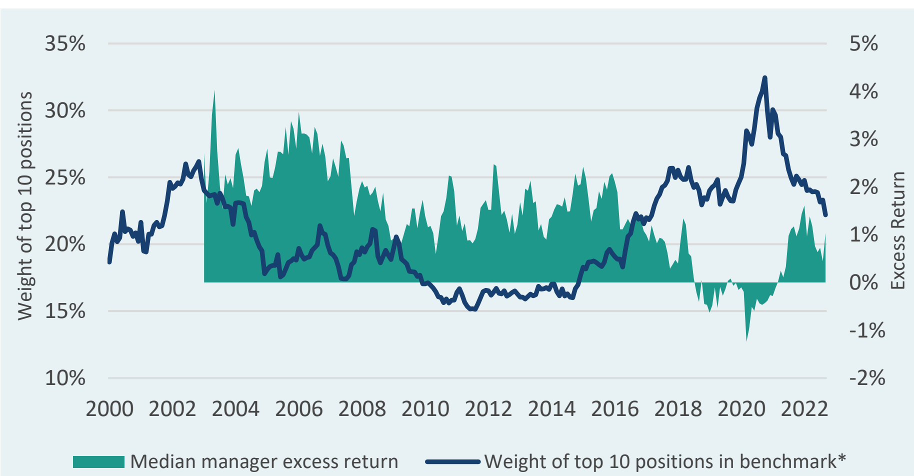
Equities – Emerging markets

— Over the trailing 3-year period, the distribution of emerging markets equity strategy returns was wide and non-normal, with a slight majority of managers outperforming the index on a net-of-fees basis. A global market sell off and rising geopolitical tension has pushed 3- and 5-year trailing benchmark returns negative, though some managers—many with higher risk tolerances—were able to generate positive absolute performance.

— Managers in the universe tend to take more risk than the MSCI Emerging Markets Index. This is evident across all trailing periods in the bottom right chart. The higher volatility of returns does not appear to have hampered return generation; however, the strength of the relationship was weaker across longer-dated time periods.

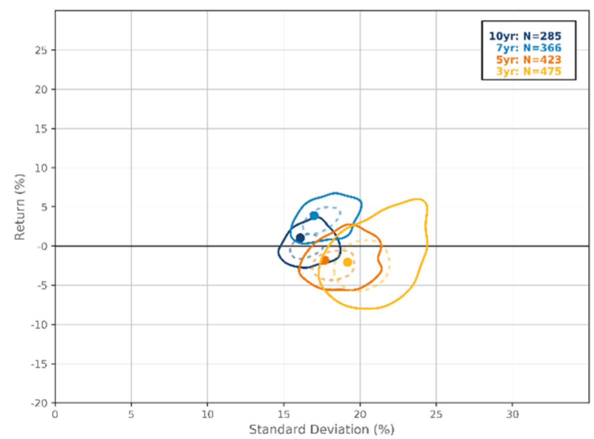
— Increased index concentration has challenged active managers over the trailing 3- and 5-year periods. In October of 2020, the top 10 holdings of the MSCI Emerging Markets Index exceeded a 30% cumulative weight for the first time in the history of the benchmark. Technology-focused companies such as Tencent, Alibaba, TSMC, and Samsung have been the largest positions in the index since 2015. Propelled by growth-style tailwinds and a risk-forward appetite, these names rose to extreme valuations that many active managers deemed unreasonable. A 2022 style reversal brought lofty valuations back down, returning benchmark concentration to 2017 levels.

BENCHMARK CONCENTRATION & 3-YEAR ROLLING EXCESS RETURN



*Source: eVestment & MSCI BarraOne as of 9/30/22, gross of fees; *MSCI EM-ND*

EMERGING MARKETS



Source: eVestment, as of 9/30/22. Universe returns have been adjusted for fees and survivorship bias. Benchmark displayed is the MSCI Emerging Markets Index

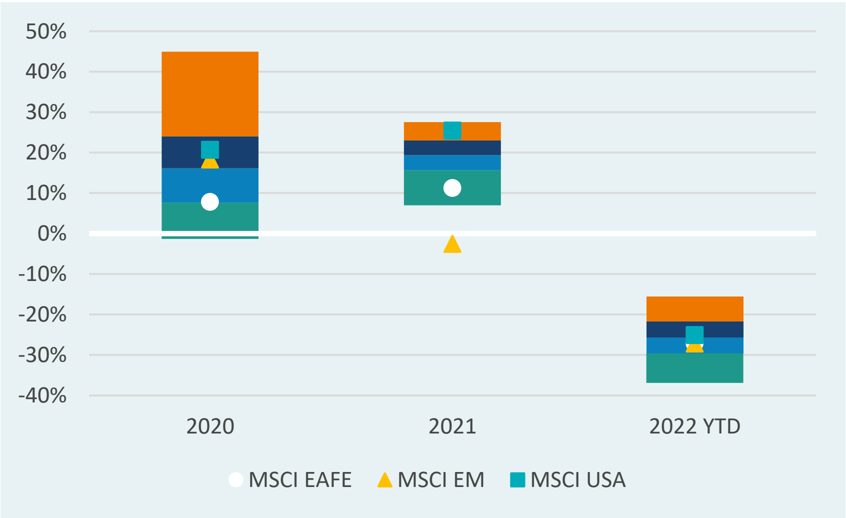
Equities – Global

— During short and long time periods, the proportion of active managers adding value over the MSCI ACWI Index has been roughly equivalent to the proportion falling short. However, we see a larger segment of the universe exhibiting higher volatility than the benchmark. This is particularly true for the 3- and 5-year periods, which reflect higher volatility among global equity products during a period which included a global pandemic, rising interest rates, and geopolitical influences.

— The relationship between risk and return appears negligible when looking at the short and long periods in the bottom-right chart. However, closer examination of the 3-year period reveals a slight performance advantage among products exhibiting a higher level of risk than the benchmark.

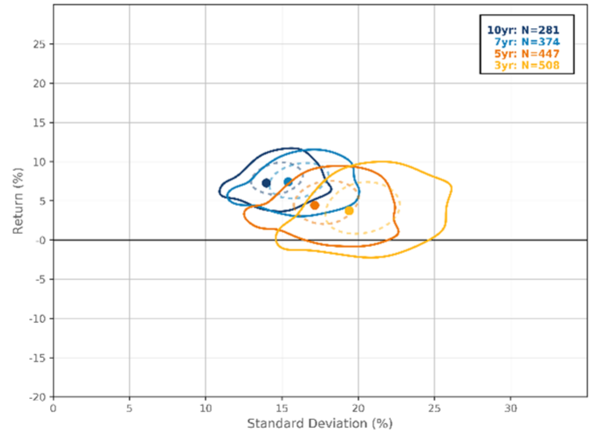
— Active managers in the global equity space have multiple levers with which to generate excess returns. As illustrated in the bottom-left chart, a good example is 2021 when managers who were overweight the U.S. and underweight emerging markets were favored. Then, 2022 proved more challenging when returns from emerging markets, developed non-U.S., and U.S. markets were nearly equivalent. In this environment, managers with good sector selection and stock selection delivered outperformance in a declining market.

GLOBAL EQUITY MANAGER REGIONAL IMPACT



Source: eVestment as of 12/12/22, gross of fees

GLOBAL EQUITY



Source: eVestment, as of 9/30/22. Universe returns have been adjusted for fees and survivorship bias. Benchmark displayed is the MSCI ACWI Index

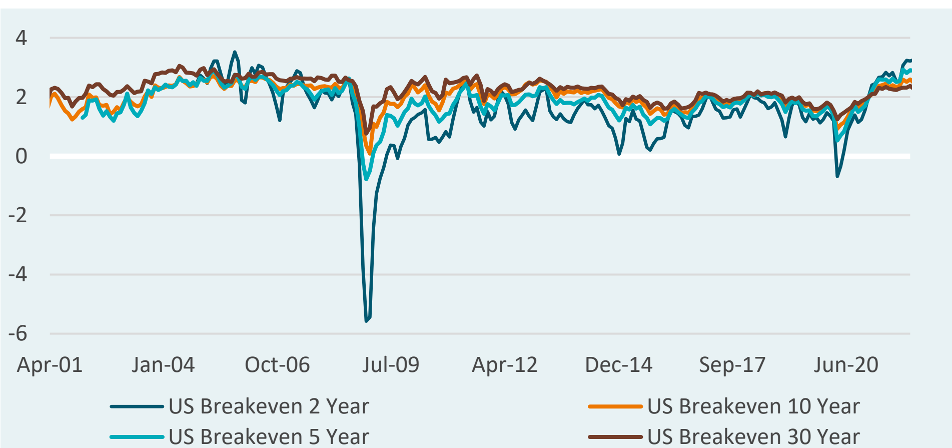
Fixed income – U.S. TIPS

— Over the 3-year period, the U.S. TIPS market experienced a materially wider distribution of returns relative to longer rolling periods, which is reflected in the graph on the bottom-right of the page. This wider distribution reflects a significant increase in market volatility driven by rapid central bank tightening and an uncertain future trajectory. Given the significance in rate moves over the past year, strategies with a lower duration tended to outperform the index over the 3-year period while longer duration strategies lagged the benchmark.

— Historically, U.S. TIPS have been a relatively efficient asset class, with a limited active opportunity set. This is reflected in a much narrower distribution of outcomes over the longer 5-, 7-, and 10-year periods. While the 7- and 10-year returns show a slight upward and downward tilt, respectively, there appears to be little evidence that active managers are compensated for taking increased risk within the active TIPS universe.

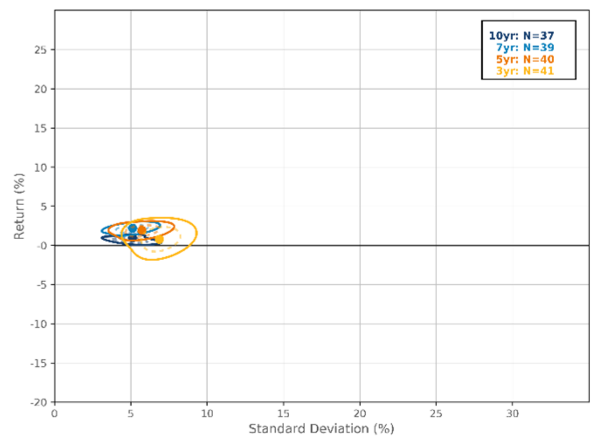
— While the active management opportunity within U.S. TIPS appears limited, exposure to the asset class may still provide valuable diversification and risk management benefits, particularly for investors seeking inflation protection.

U.S. BREAKEVEN INFLATION RATES



Source: Bloomberg, as of 11/30/22

U.S. TIPS



Source: eVestment, as of 9/30/22. Universe returns have been adjusted for fees and survivorship bias. Benchmark displayed is the Bloomberg U.S. TIPS Index

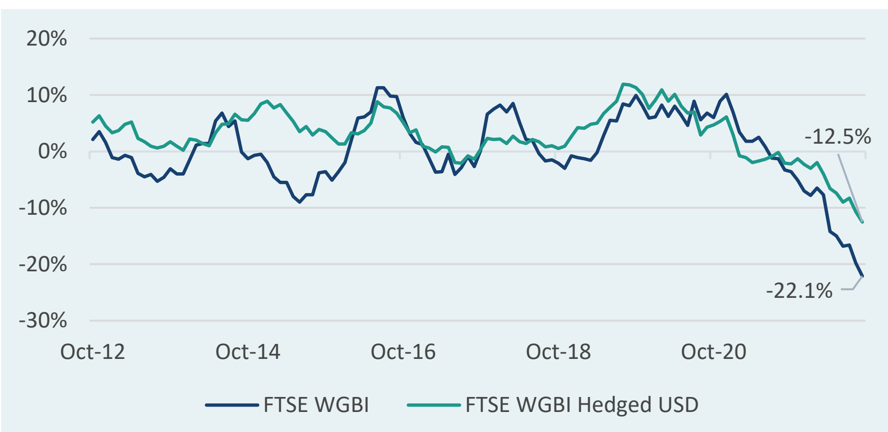
Fixed income – Global sovereign

— Within the global sovereign active management universe, dispersion amongst managers has increased significantly over the recent 3-year period relative to all other periods. This was driven by significant increases in developed market interest rates and currency volatility. All periods demonstrated a negative slope to the universe chart, with the most dramatic tilt occurring over the most recent period. This suggests that higher-risk active products have not been compensated for higher volatility within the global sovereign universe.

— The active global sovereign universe is not a homogeneous universe, and exposure to credit and currencies varies across strategies. The extent to which active strategies hedge or are overweight currency exposure relative to the FTSE World Government Bond Index (WGBI) has determined a significant part of the dispersion within the universe recently. Over the one-year period ending September 30th, 2022, the FTSE WGBI fully hedged to the U.S. dollar outperformed the unhedged version of the same index by over 960 basis points.

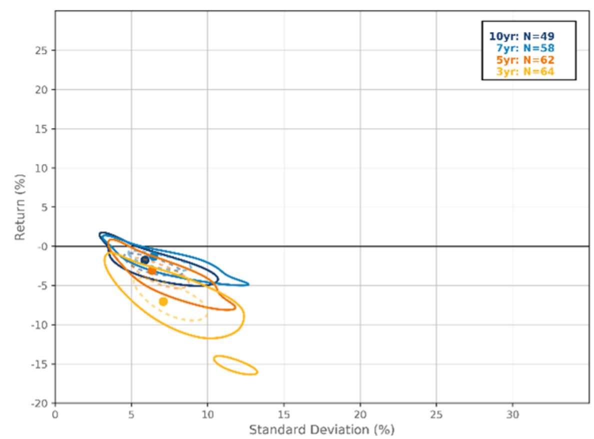
— 2022 was the fastest and most synchronized developed market central bank tightening cycle on record with 10-year yields in the U.S., U.K., and European Union all increasing over 200 basis points over the first three quarters of the year. While this has proven to be a challenging environment for performance, higher yields and the potential for more divergent central bank policy may create a more favorable environment for active management.

12-MONTH ROLLING PERFORMANCE



Source: eVestment, as of 9/30/22

GLOBAL SOVEREIGN



Source: eVestment, as of 9/30/22. Universe returns have been adjusted for fees and survivorship bias. Benchmark displayed is the FTSE WGBI

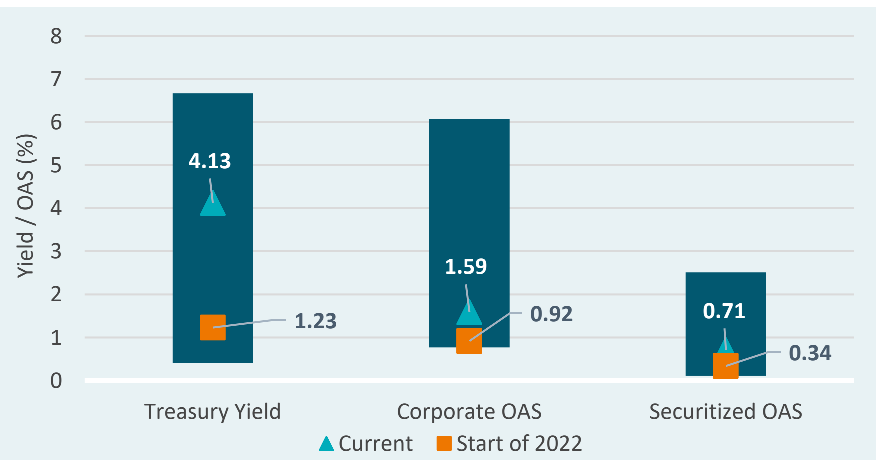
Fixed income – U.S. core

— The U.S. core universe has historically exhibited very low dispersion among active managers, with minimal differentiation from the benchmark regarding both risk and return. The distribution of outcomes over all trailing periods has been fairly normal, as demonstrated by the even, circular distributions shown in the bottom-right chart. Through 2022, the sharp rise in interest rates, as well as the unwinding of the Fed's asset purchase program, has led to greater dispersion in the shorter 3-year period. While the increased volatility has led to a majority of active managers underperforming the U.S. Aggregate Index in the first three quarters of 2022, over 70% of active strategies have outperformed the index across each of the longer 3-, 5-, 7- and 10-year periods on a net-of-fee basis.

— Year-to-date, there were few diversification benefits within the U.S. Aggregate Index. All sectors struggled, with the U.S. Treasury component down -13.1%, the corporate component down -18.7%, and the securitized component down -13.5%, limiting the ability of active managers to benefit from sector rotation. The extraordinary move in interest rates over the course of the year has acted as a significant headwind, resulting in negative absolute returns for the entirety of the universe over the 3-year period, and also for a majority of the 5-year period. Strategies which entered the year underweight duration relative to the benchmark were generally able to achieve alpha over the first three quarters of 2022.

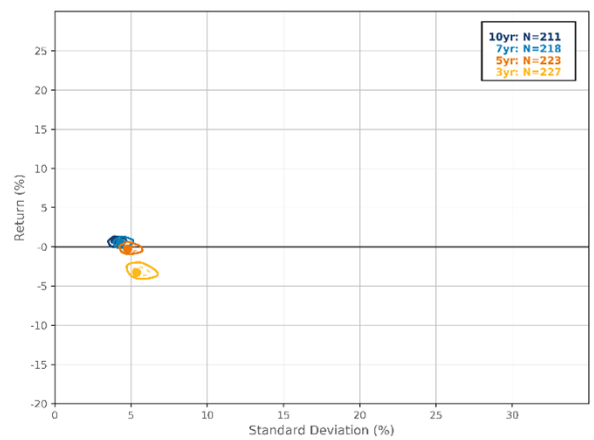
— Despite limited product dispersion, we believe that some high-caliber active U.S. core strategies are well-equipped to effectively manage liquidity more prudently during drawdowns, manage risks in difficult markets, and avoid idiosyncratic risks throughout various market environments.

US AGGREGATE BOND INDEX SECTOR YIELD/OAS RANGES SINCE 2000



Source: Barclays Live as of 9/30/22.

U.S. CORE



Source: eVestment, as of 9/30/22. Universe returns have been adjusted for fees and survivorship bias. Benchmark displayed is the Bloomberg U.S. Aggregate Index

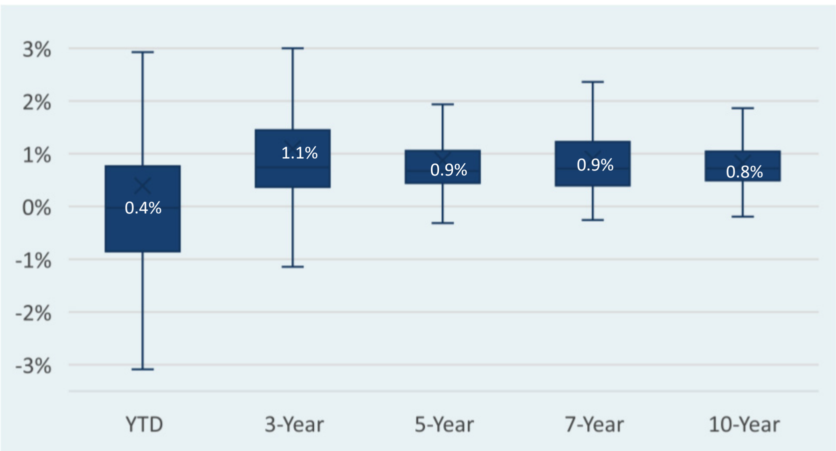
Fixed income – U.S. core plus

— The U.S. core plus asset class has experienced markedly depressed returns, for similar reasons described in the core bond space (see prior page). Nearly all strategies within the universe experienced negative returns over the 3-year period. As was the case in prior years, the benchmark rests to the far left of the universe charts in all lookback periods, indicating that most active strategies delivered more risk than the Bloomberg U.S. Universal Index.

— Core plus managers typically underweight U.S. Treasury and government bonds relative to the benchmark, and maintain overweight positions in spread sectors, including out-of-benchmark allocations to high-yield and emerging market debt. Given the underperformance of most spread sectors and the sharp decline in both high yield and emerging market debt during 2022, a majority of active managers struggled to outperform the benchmark after fees. Those strategies which maintained lower allocations to corporate credit and shorter duration positions relative to the benchmark were more likely to outperform. Over longer 3-, 5-, 7-, and 10-year periods, most active managers were able to outperform the benchmark, benefiting from the yield advantage gained through overweight positions to spread sectors as well as skillful security selection and sector rotation.

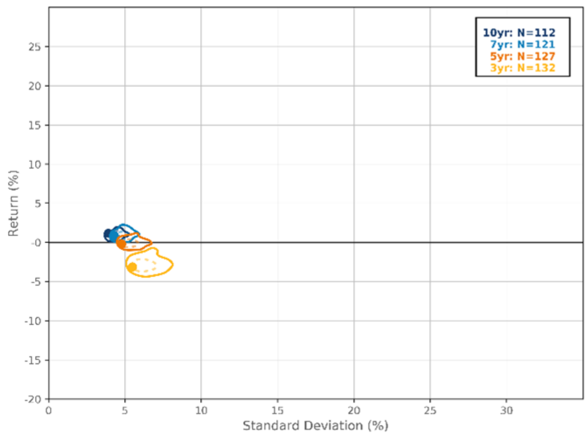
— While dispersion among U.S. core plus strategies is relatively narrow (similar to U.S. core bonds), we continue to believe quality active core plus strategies may be well-equipped to effectively manage liquidity and avoid idiosyncratic risks throughout various market environments via the implementation of diligent security selection and sector rotation.

CORE PLUS ACTIVE MANAGER UNIVERSE EXCESS RETURNS



Source: eVestment, as of 9/30/22, Benchmark: Bloomberg US Universal, gross of fees

CORE PLUS

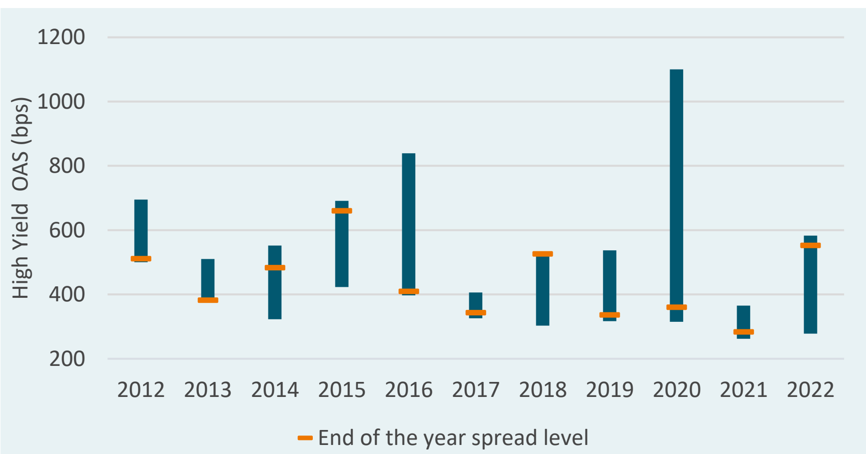


Source: eVestment, as of 9/30/22. Universe returns have been adjusted for fees and survivorship bias. Benchmark displayed is the Bloomberg U.S. Universal Index

Fixed income – U.S. high yield

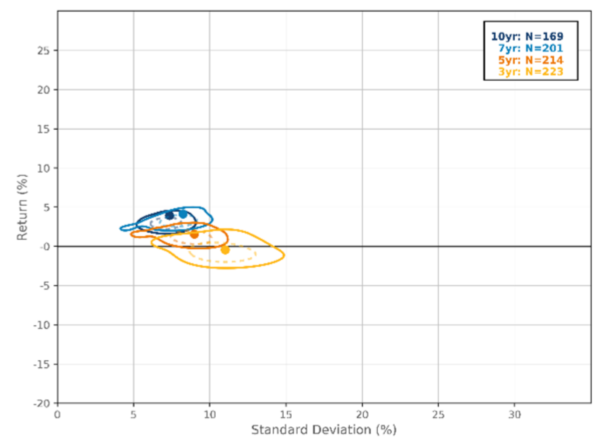
- Historically, we have observed that actively managed high-yield strategies demonstrate greater dispersion around the benchmark compared to more interest rate-sensitive core and core plus products. Over the shorter 3-year period there has been a significant increase in the dispersion of both risk and return within the universe, driven by greater volatility within credit markets over that period. During the 3- and 5-year periods, the benchmark is located near the center of the universe, indicating the number of strategies adding value was in line with the number of strategies underperforming the benchmark. Strategies positioned with lower duration and higher-quality credits were more likely to outperform. Over the longer 7- and 10-year periods, the benchmark appeared at the top of the universe with few strategies demonstrating the ability to add value.
- Over 3- and 5-year periods, the universe chart was relatively flat with no discernible relationship between added risk and added return. Over the longer 7- and 10-year periods, there was a very modest upward tilt to the universe, indicating mild payoff from additional volatility.
- Active management in high yield has the potential to benefit from skilled managers able to identify bonds with attractive valuations and positive fundamentals, thus avoiding idiosyncratic risk resulting from ratings downgrades or defaults.

HIGH YIELD OPTION ADJUSTED SPREAD RANGES



Source: Barclays, as of 9/30/22

U.S. HIGH YIELD



Source: eVestment, as of 9/30/22. Universe returns have been adjusted for fees and survivorship bias. Benchmark displayed is the Bloomberg U.S. Corporate High Yield Index

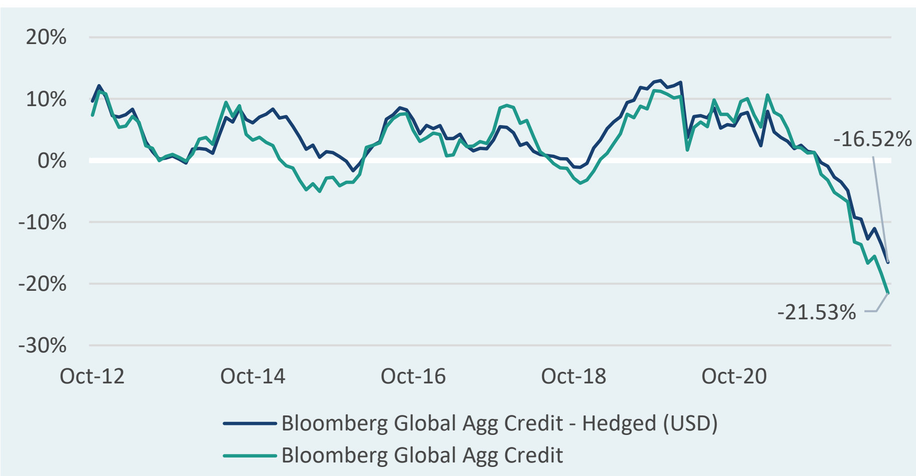
Fixed income – Global credit

— The global credit universe is relatively heterogenous with strategies managing against more than 50 different benchmarks. Strategies tend to have varying exposures to emerging market corporate debt, foreign currency risk, as well as a wide range of credit quality. This leads to wide universe dispersion with an irregular performance distribution over the periods shown below. Dispersion has increased significantly, recently driven by greater uncertainty regarding global growth, future interest-rate trajectories, and geopolitical tensions in both Europe and Asia.

— While the range of outcomes tends to vary considerably throughout the universe, there has been a strong negative relationship between risk and return in all time periods shown, as managers have not been compensated for taking on additional risk within the global credit universe. We have observed that a majority of strategies within the active universe were able to produce excess returns over the Bloomberg Global Aggregate – Credit Index on a net-of-fee basis; however, those strategies that took on greater risk than the benchmark were much less likely to outperform.

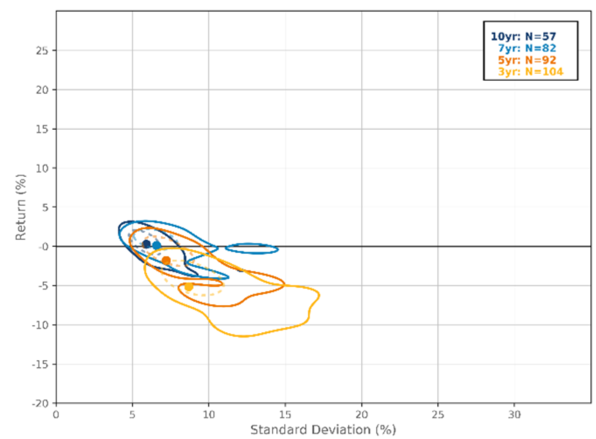
— One of the major risks within global credit portfolios is unhedged foreign currency exposure. Over the rolling 1-year period ending September 2022, the hedged version of the Bloomberg Global Aggregate Credit Index outperformed the unhedged version of the same index by 500 basis points. As such, we believe that it is important to evaluate unhedged global credit managers on their currency management skill as well as their skill in managing bonds.

12-MONTH ROLLING PERFORMANCE



Source: eVestment, as of 9/30/22

GLOBAL CREDIT



Source: eVestment, as of 9/30/22. Universe returns have been adjusted for fees and survivorship bias. Benchmark displayed is the Bloomberg Global Aggregate – Credit

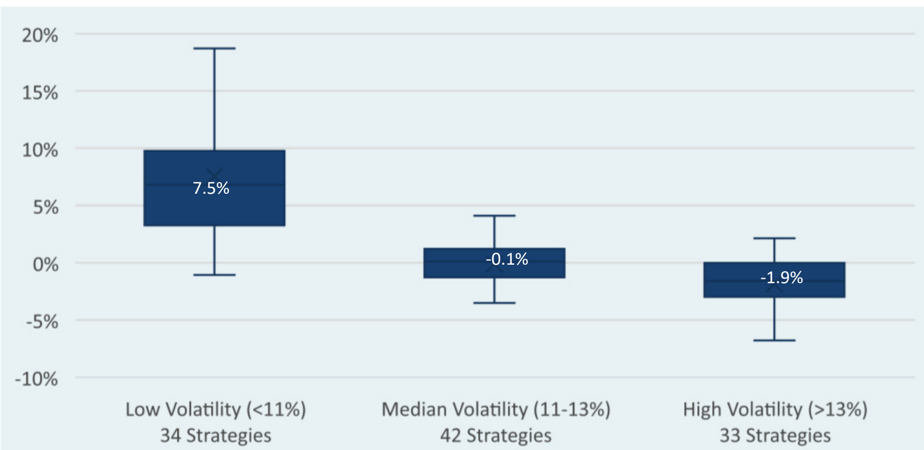
Fixed income – Emerging market debt (hard currency)

— Over the longer 7- and 10-year periods, there was a very slight downward tilt to the universe charts, indicating a very modest negative relationship between risk and return amongst active managers within the emerging market debt hard currency universe. Over the shorter 3- and 5-year period, the strength of the relationship increased significantly with benchmark-relative risk explaining most of the return dispersion within the universe.

— Dispersion increased significantly over the 3-year period relative to longer trailing periods. Concerns about inflation, the impact of rising U.S. interest rates, elevated geopolitical tensions, and weaker-than-expected global growth all contributed to market volatility in 2022 and led to a wider range of outcomes. The heightened volatility over the short-term provided a more favorable environment for active management as most strategies were able to outperform the benchmark on a net-of-fee basis. The active environment was less favorable over longer periods, which was particularly apparent in the 10-year period with the benchmark appearing near the top border of the universe chart.

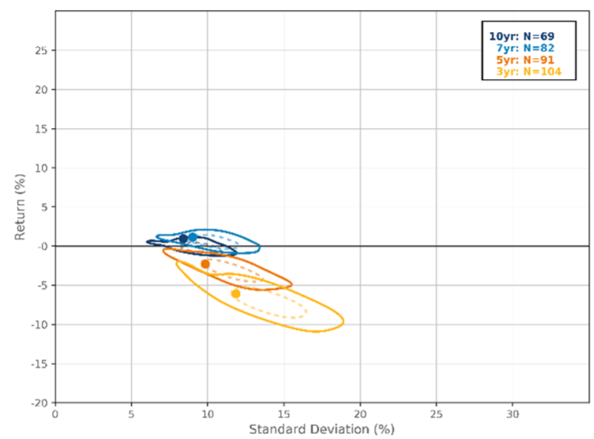
— Many hard currency strategies carry off-benchmark securities in efforts to add return, mitigate risk, or both. Off-benchmark exposures may include other emerging market-related sectors, such as quasi-sovereign, corporate credit, local currency debt, and emerging market currency. Given limited local currency exposure, hard currency strategies tended to show a smoother return profile relative to local currency strategies.

EMD HARD CURRENCY UNIVERSE – YEAR TO DATE EXCESS RETURNS



Source: eVestment as of 9/30/22, gross of fees

EMERGING MARKET DEBT (HARD)



Source: eVestment, as of 9/30/22. Universe returns have been adjusted for fees and survivorship bias. Benchmark displayed is the JP Morgan EMBI Global Diversified Index

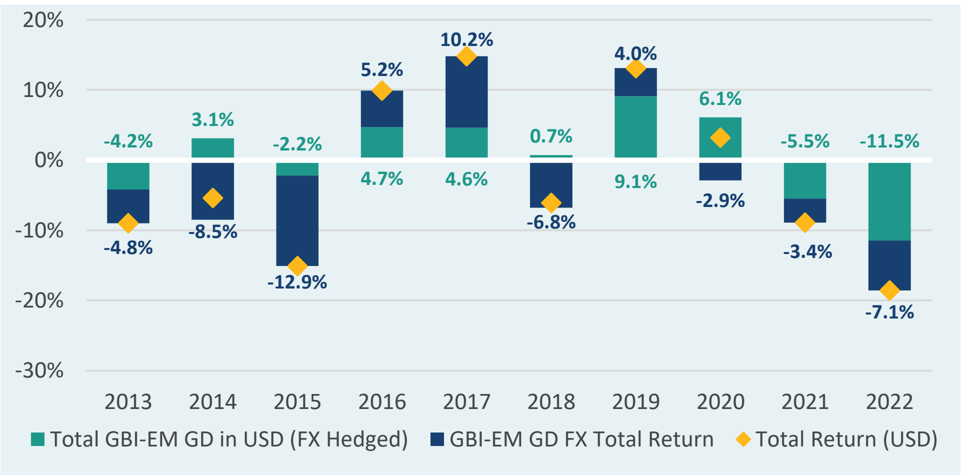
Fixed income – Emerging market debt (local currency)

— Over longer 7- and 10-year periods, we observed a fairly neutral relationship between risk and return with little evidence that active local currency strategies were either compensated or penalized for taking additional risk. Over more recent 3- and 5-year periods, local currency EMD strategies exhibited a slightly negative relationship between risk and return as incremental risk taking has generally gone unrewarded.

— Dispersion amongst strategies has increased recently, driven by heightened geopolitical tensions, as well as divergent central bank interest rate policies. Over shorter periods, particularly the 3-year period, a majority of strategies were able to outperform the benchmark. This indicates a relatively strong environment for active management. On an absolute basis, the asset class continues to experience headwinds resulting from high inflation, continued U.S. dollar strength, and a broader tightening in global financial conditions.

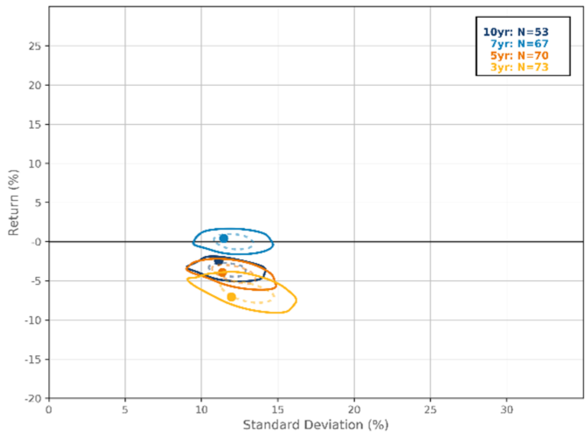
— Local currency-denominated emerging market debt generally provides a degree of diversification for multi-asset portfolios, due to its unhedged currency component, though that diversification may also carry with it a significant amount of added volatility due to geopolitical risk, idiosyncratic country-specific event risk, and other factors. The first three quarters of 2022 were particularly challenging for unhedged U.S. investors as the foreign currency component of local EMD strategies detracted approximately -7.1%. Asian and European regions exhibited the weakest currency performance.

ANNUAL CURRENCY IMPACT ON INDEX RETURNS



Source: JP Morgan, as of 9/30/22

EMERGING MARKET DEBT (LOCAL)



Source: eVestment, as of 9/30/22. Universe returns have been adjusted for fees and survivorship bias. Benchmark displayed is the JP Morgan GBI-EM Global Diversified Index

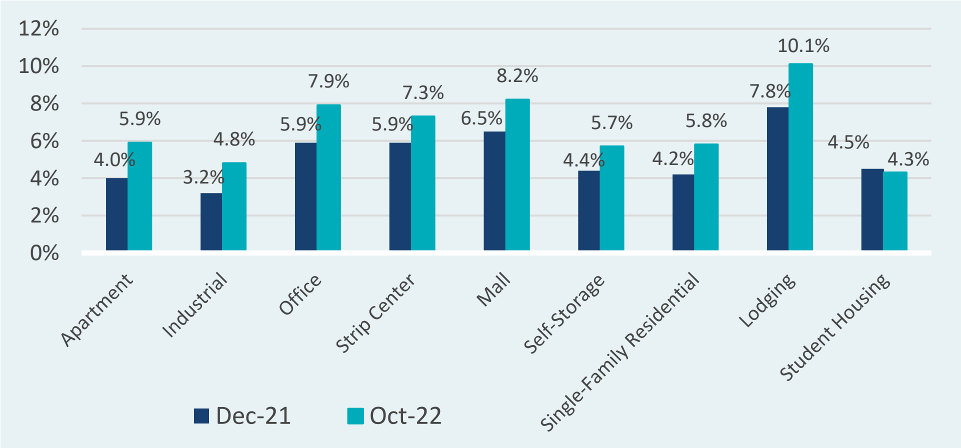
U.S. REITs

— Over longer time periods, active REIT management has broadly provided the benefit of volatility reduction rather than the generation of excess returns.

— During more-recent time periods, many active managers have been able to generate excess returns above the benchmark. There has generally been a negative relationship between risk and return as lower risk strategies outperformed higher risk strategies, on average. This is likely in part due to active manager's ability to avoid or underweight the most negative performing sectors of the market.

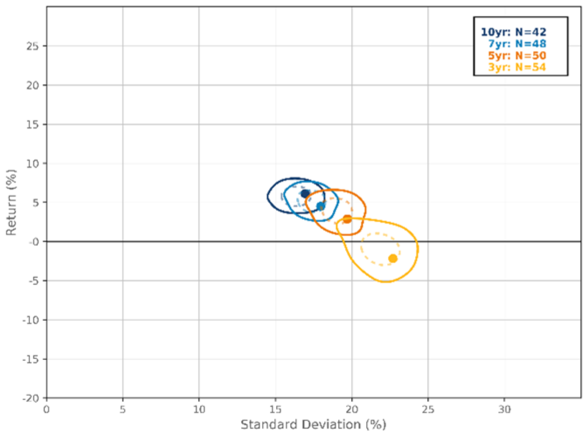
— After a very strong 2021 where REITs outperformed the broad equity market, REITs underperformed the S&P 500 Index in 2022 (Wilshire REIT -26.8% vs. S&P 500 -18.1%). A key driver of the underperformance of REITs has been the rising interest-rate environment. Typically, a rising interest-rate environment puts upward pressure on capitalization rates, decreasing the value of the underlying real estate properties. The chart on the bottom left shows how much implied cap rates have risen by property type during 2022.

IMPLIED CAP RATES – REIT SECTORS



Source: Angelo Gordon, as of 10/31/22, year-to-date

U.S. REITS



Source: eVestment, as of 9/30/22. Universe returns have been adjusted for fees and survivorship bias. Benchmark displayed is the Wilshire REIT Index

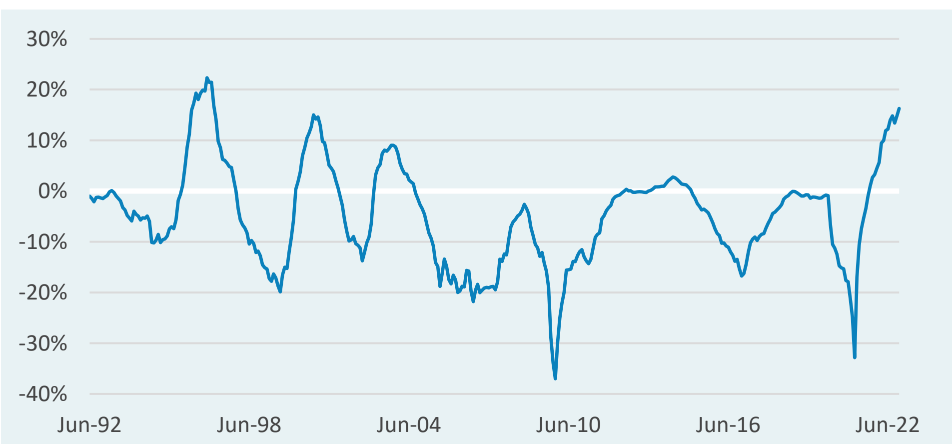
Commodities

— Active management in the commodity space tends to exhibit wide variation regarding the risk level of strategies. This may be partly a reflection of the variety of managers available. Strategies which look to mitigate negative roll yield and contango through term-structure management have continued to add value over standard indexes, on average.

— Generally speaking, strategies which take on large amounts of additional risk beyond the benchmark have not been rewarded with additional return. In fact, over the 10-year period it appears a negative relationship existed between added risk and added return. Over the more recent 3-year period, however, the dispersion of returns was very high. This has been in part due to the recent levels of volatility in the asset class and dispersion of returns across commodity sub-sectors.

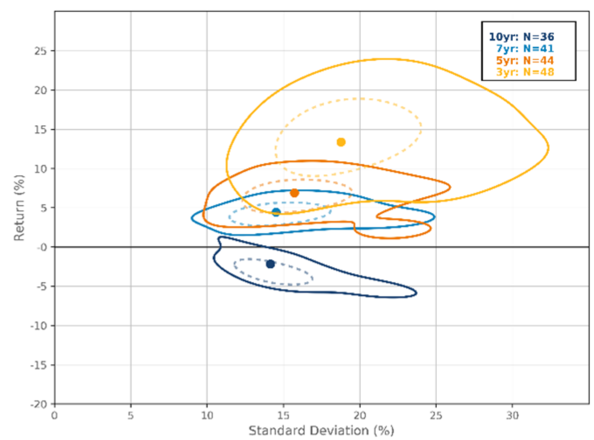
— The roll yield component has, in recent decades, provided a headwind to overall commodity returns. From early 2021, however, the roll yield moved from near historically negative territory into significantly positive territory, providing a large tailwind to futures-based commodity strategies.

12-MONTH ROLL YIELD



Source: Standard & Poor's, as of 11/30/22

COMMODITIES

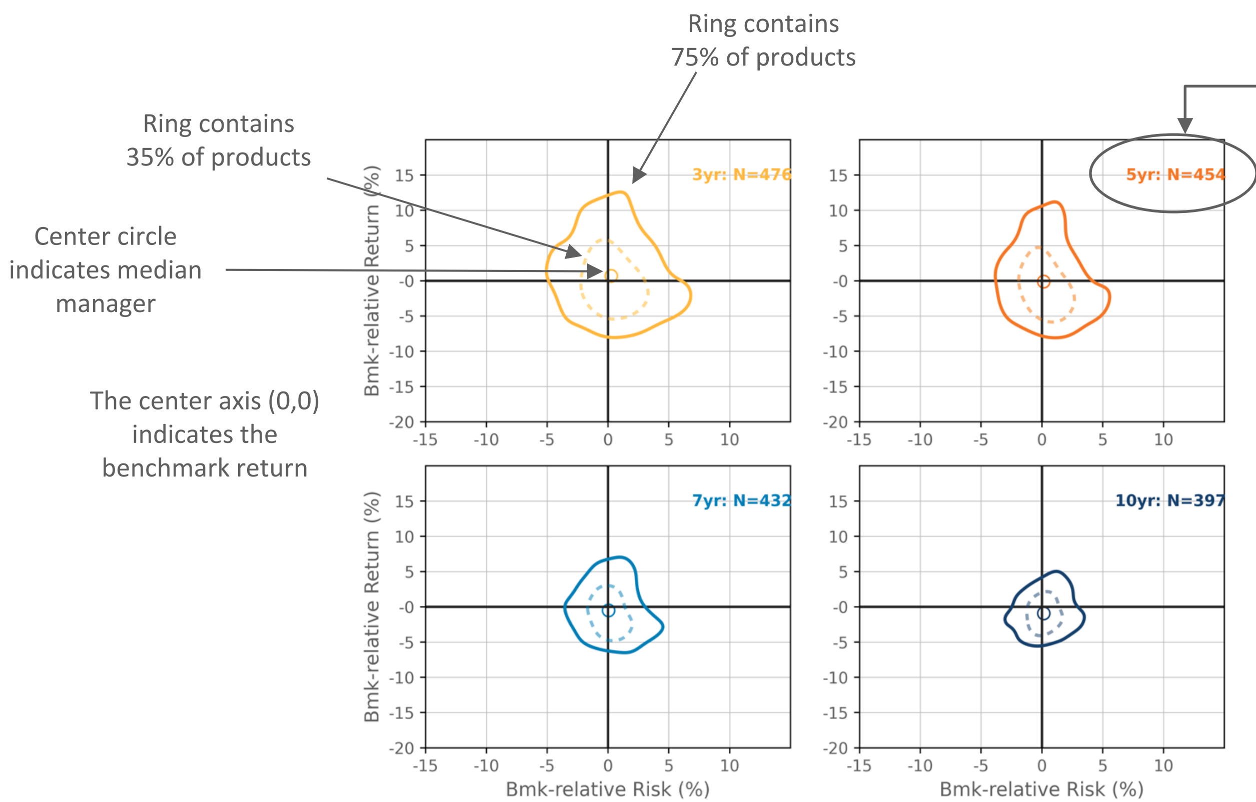


Source: eVestment, as of 9/30/22. Universe returns have been adjusted for fees and survivorship bias. Benchmark displayed is the Bloomberg Commodity Index

Appendix

Supplementary Universe Charts

How to read a risk/return universe chart

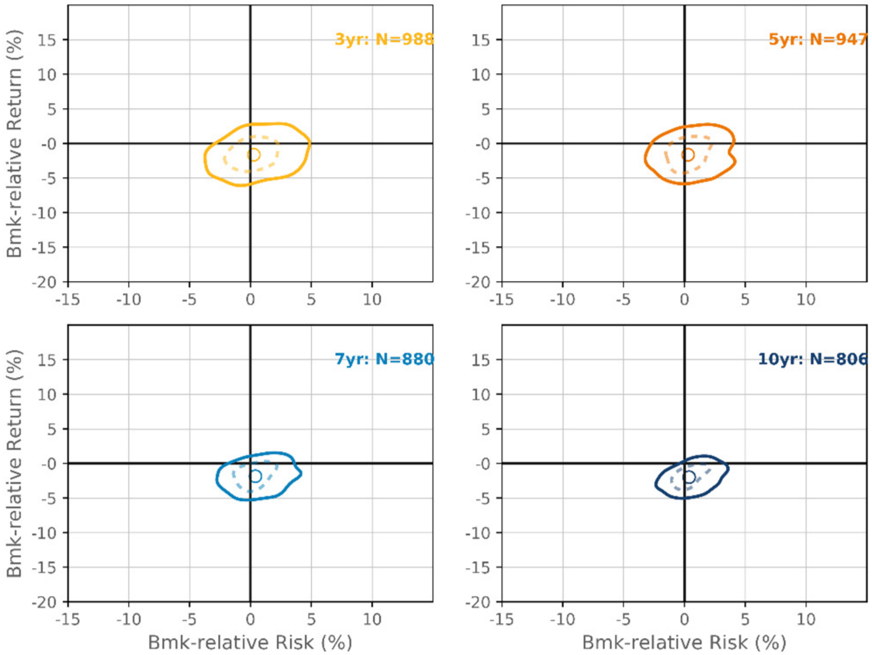


The number of products included in the analysis provides insight into the robustness of the analysis.

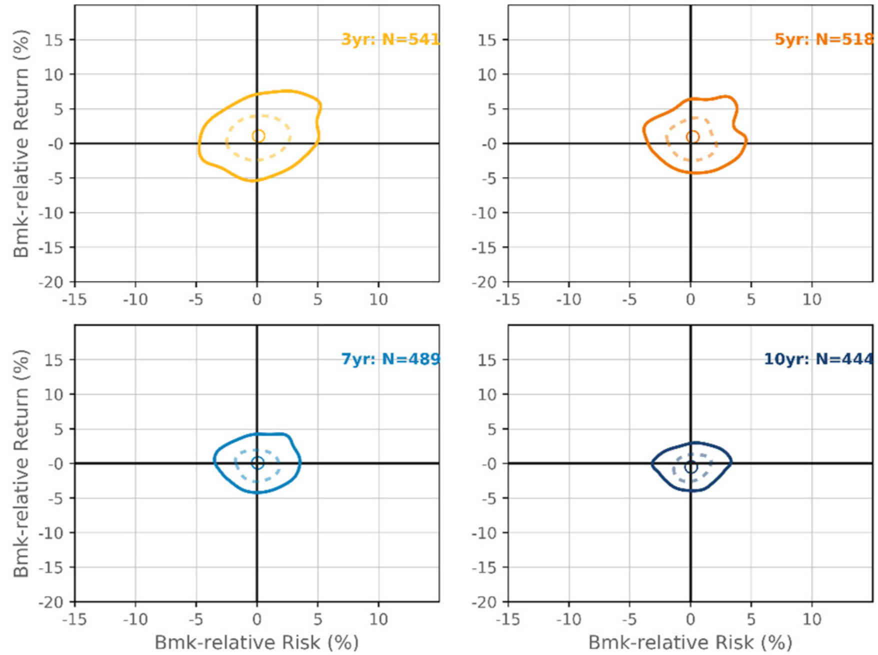
The changing shape within the charts is impacted by the market environment and the time period examined

U.S. equity

U.S. LARGE CAP



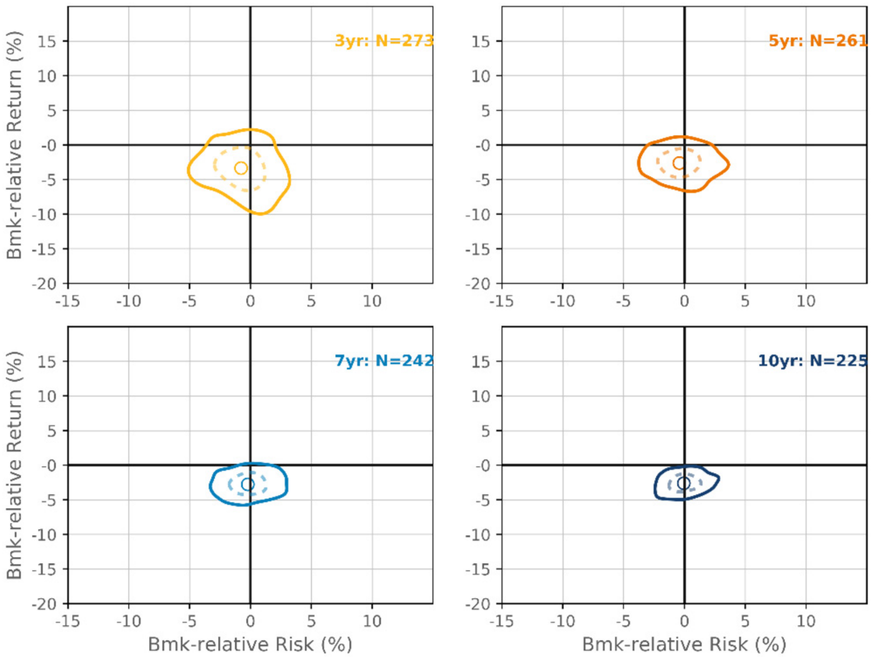
U.S. SMALL CAP



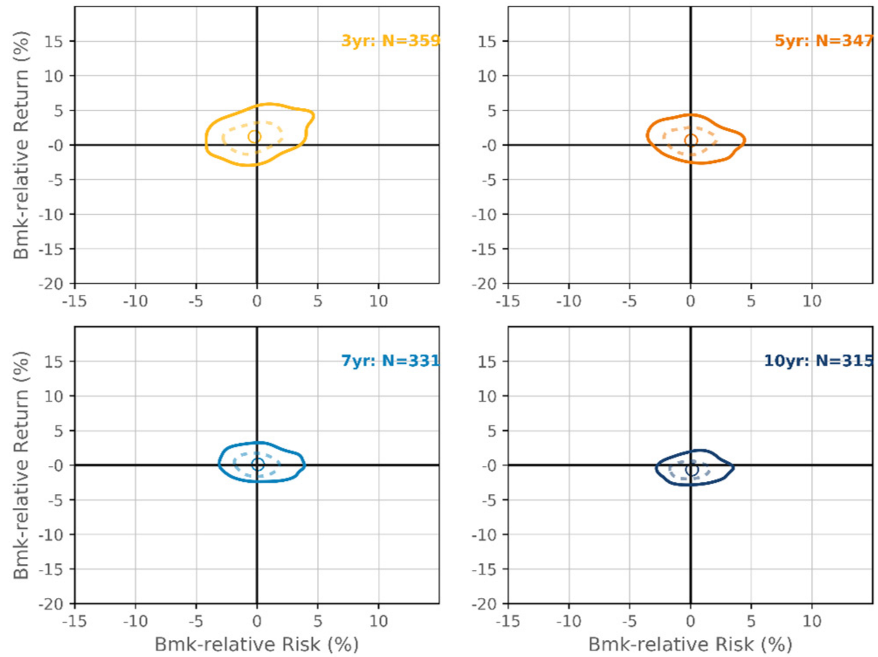
Source: eVestment, Verus, as of 9/30/22, center circle indicates median manager

U.S. equity

U.S. LARGE CAP GROWTH



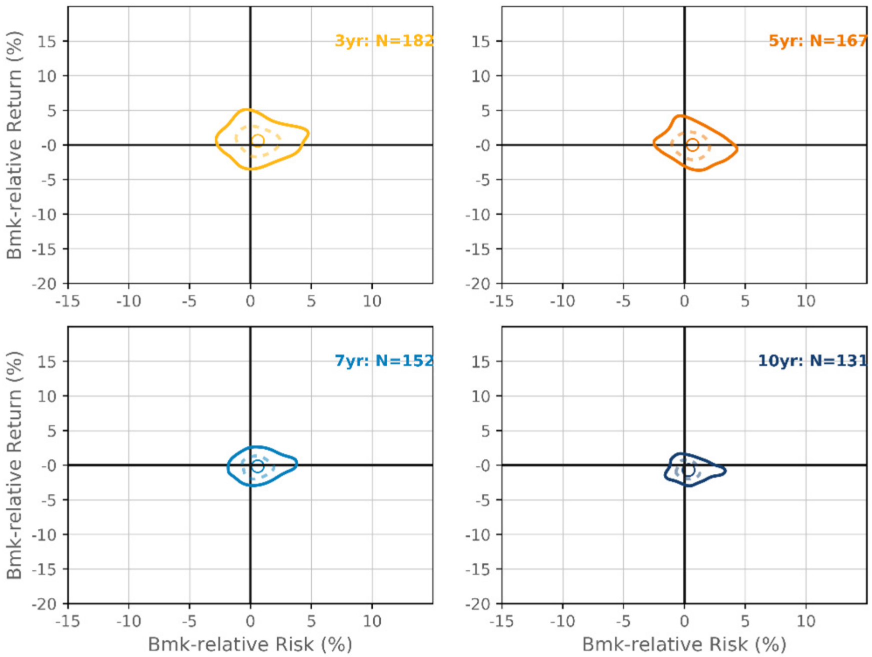
U.S. LARGE CAP VALUE



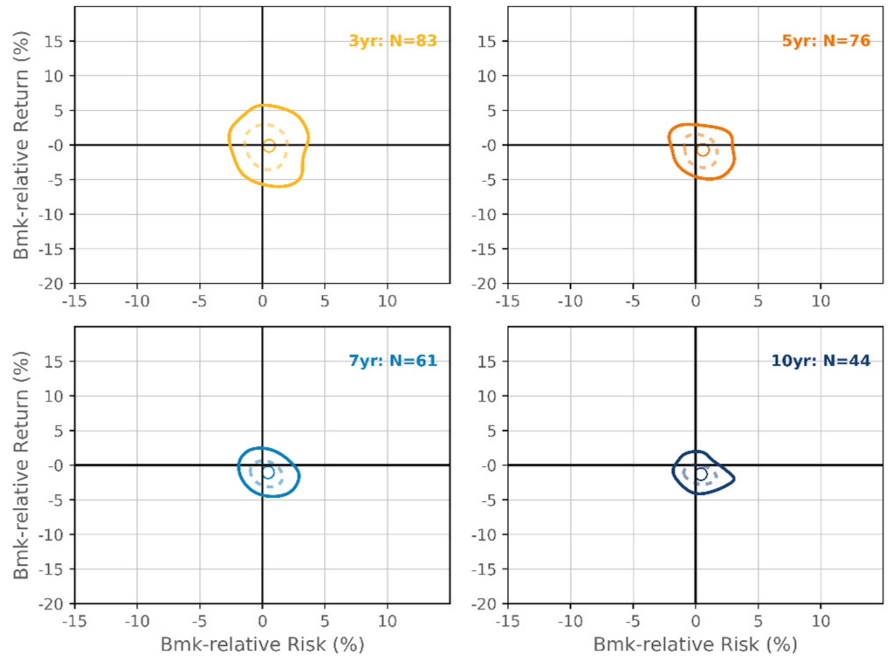
Source: eVestment, Verus, as of 9/30/22, center circle indicates median manager

International equity

INTERNATIONAL DEVELOPED



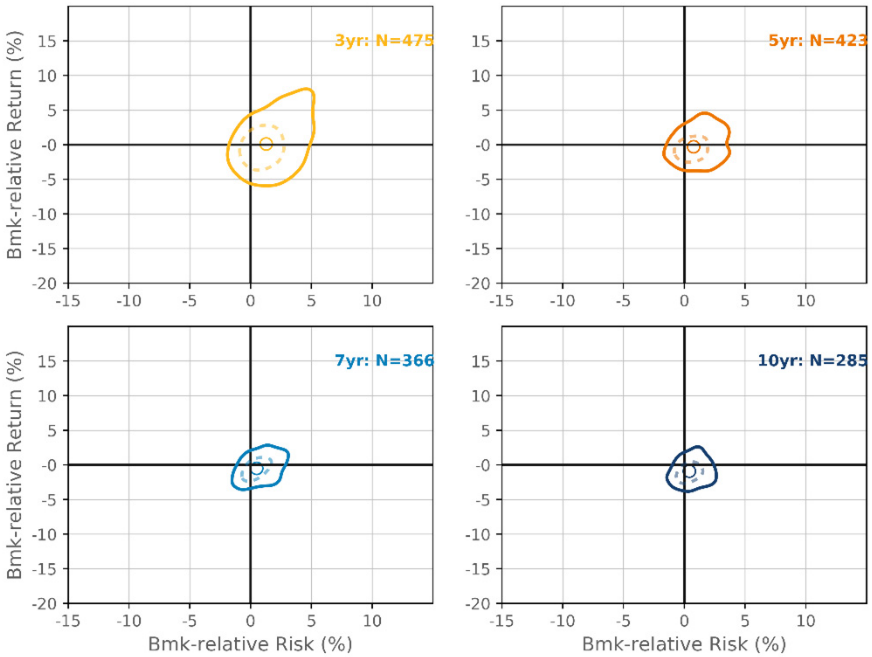
INTERNATIONAL DEVELOPED SMALL



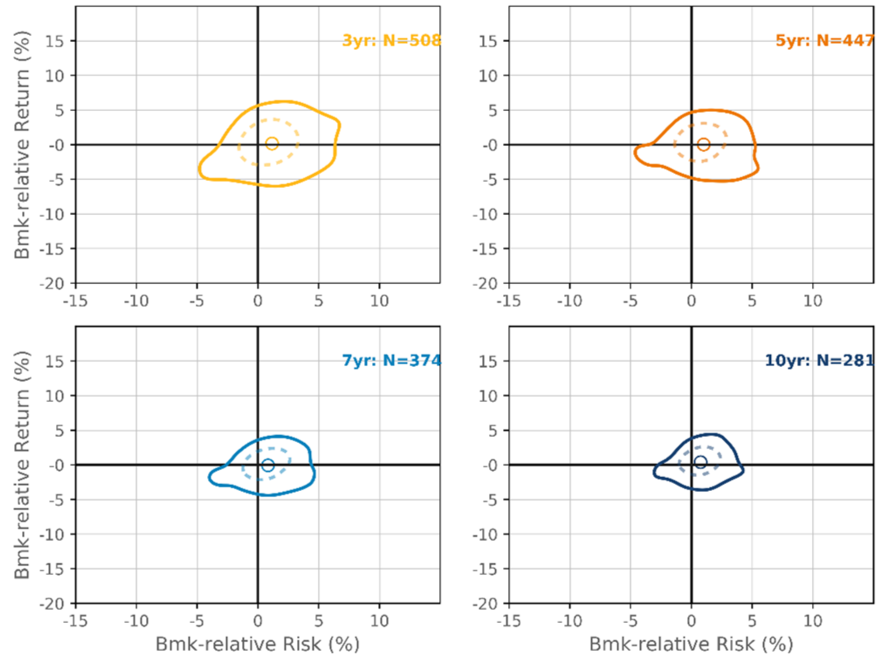
Source: eVestment, Verus, as of 9/30/22, center circle indicates median manager

Emerging market & global equity

EMERGING MARKETS



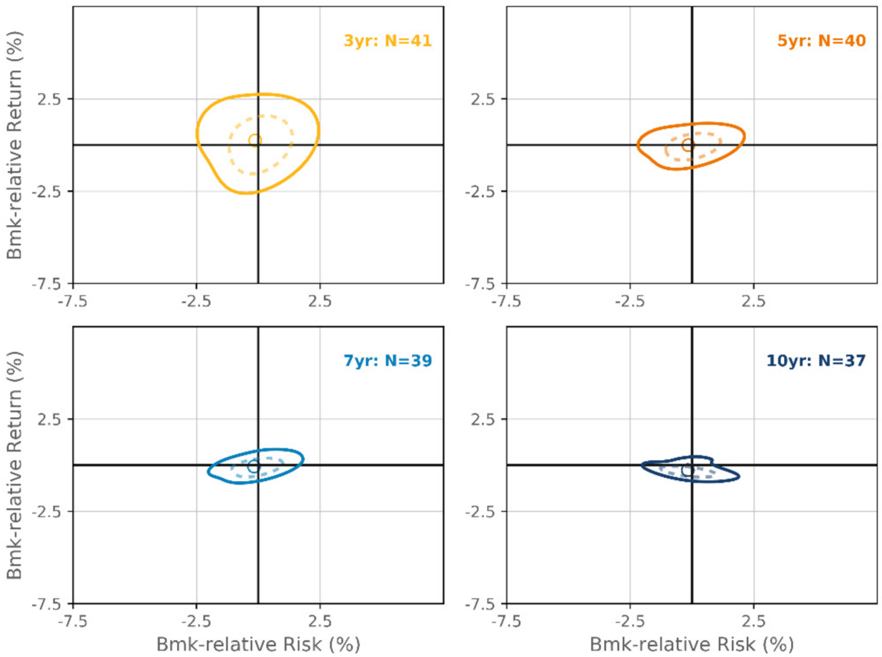
GLOBAL



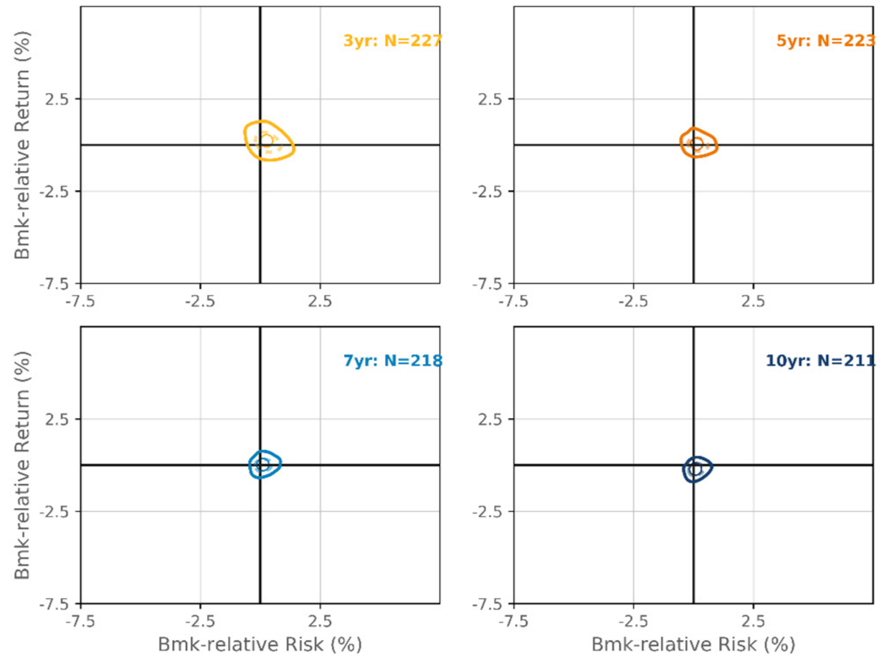
Source: eVestment, Verus, as of 9/30/22, center circle indicates median manager

U.S. fixed income

U.S. TIPS



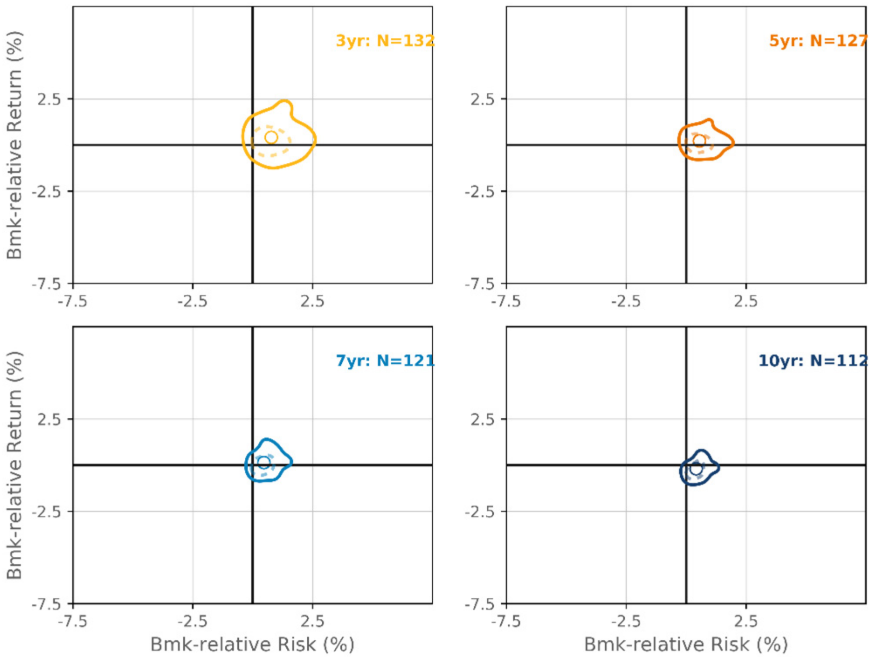
U.S. CORE



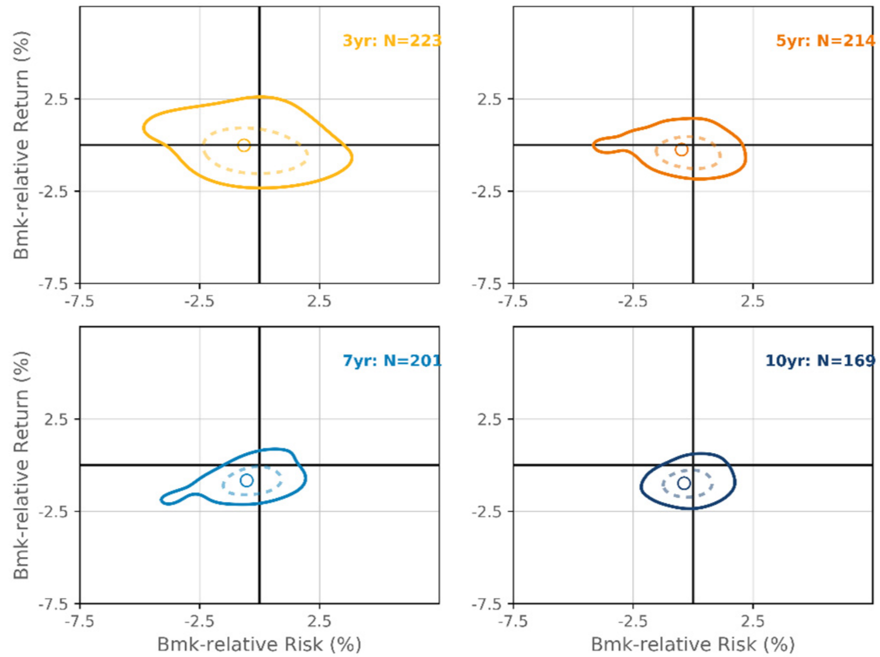
Source: eVestment, Verus, as of 9/30/22, center circle indicates median manager

U.S. credit

U.S. CORE PLUS



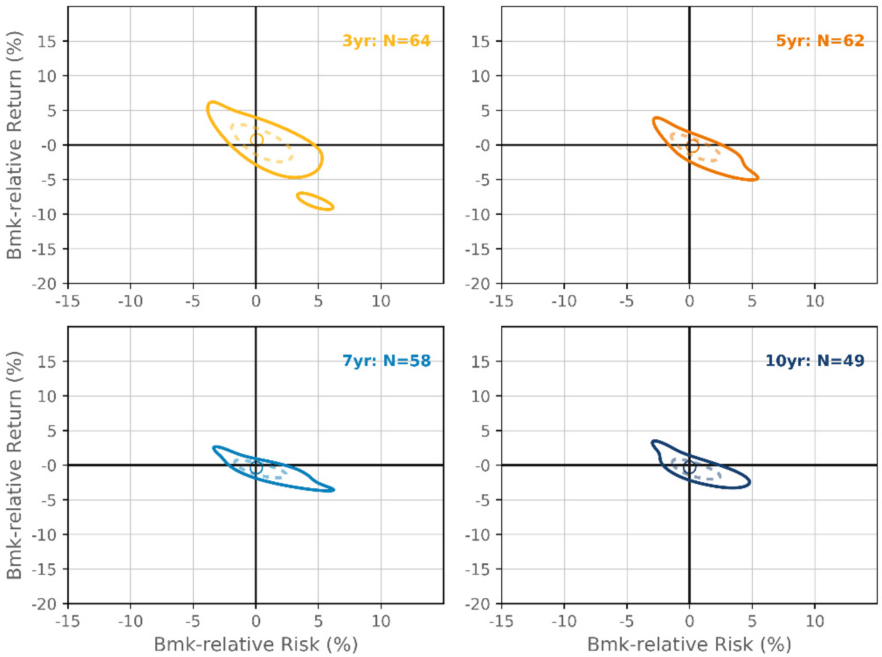
U.S. HIGH YIELD



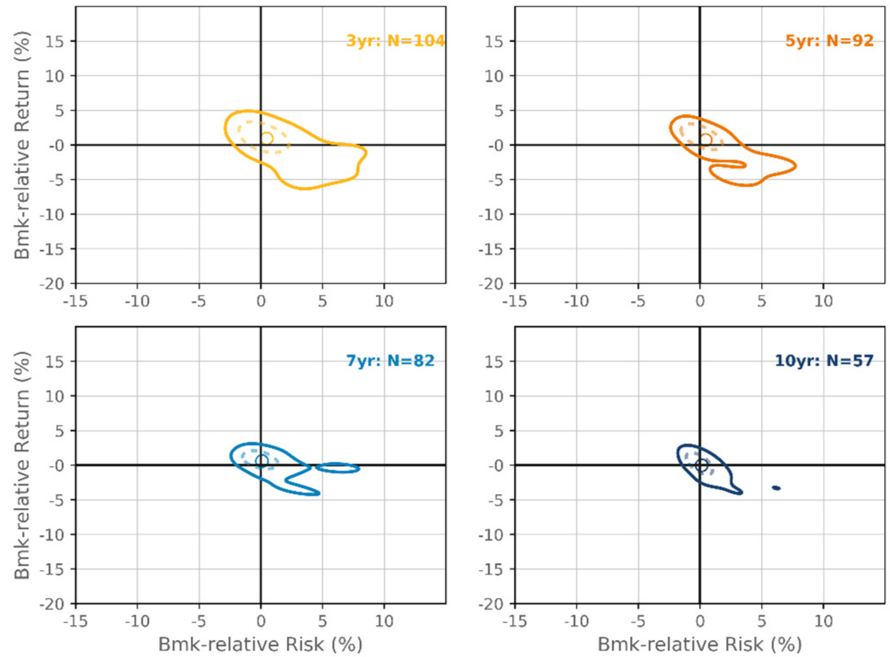
Source: eVestment, Verus, as of 9/30/22, center circle indicates median manager

Global fixed income

GLOBAL SOVEREIGN



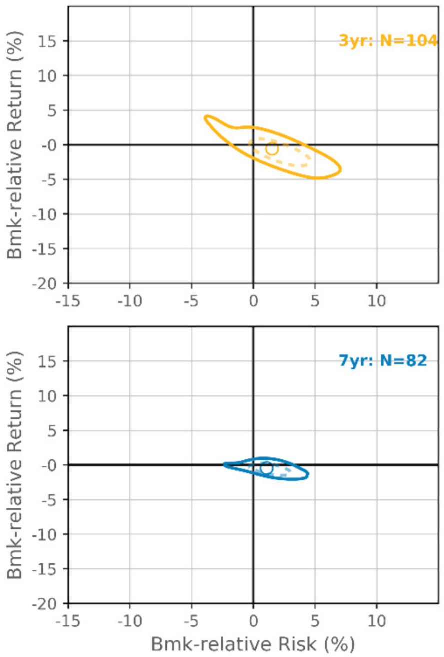
GLOBAL CREDIT



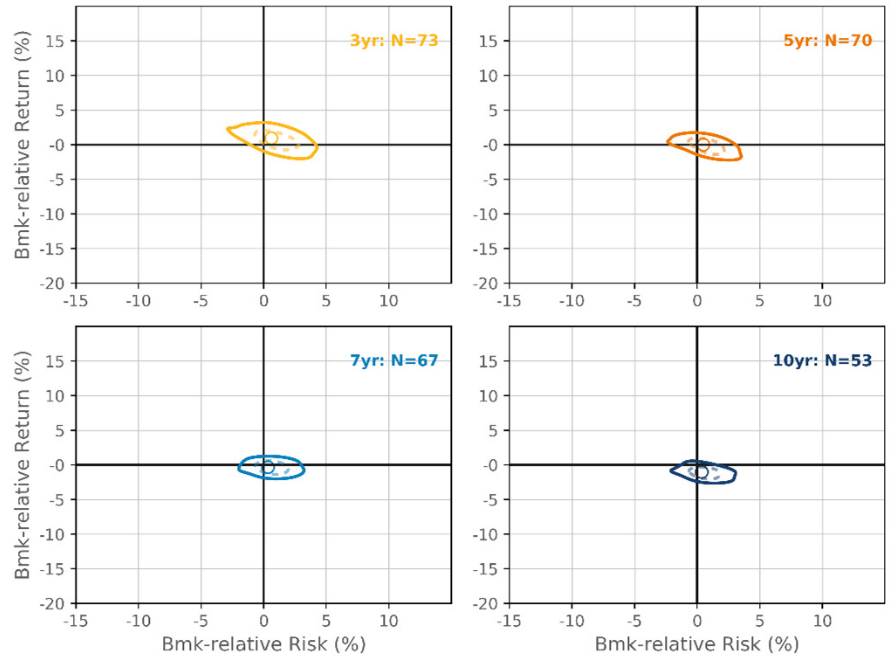
Source: eVestment, Verus, as of 9/30/22, center circle indicates median manager

Emerging market debt

EMERGING MARKET DEBT (HARD)



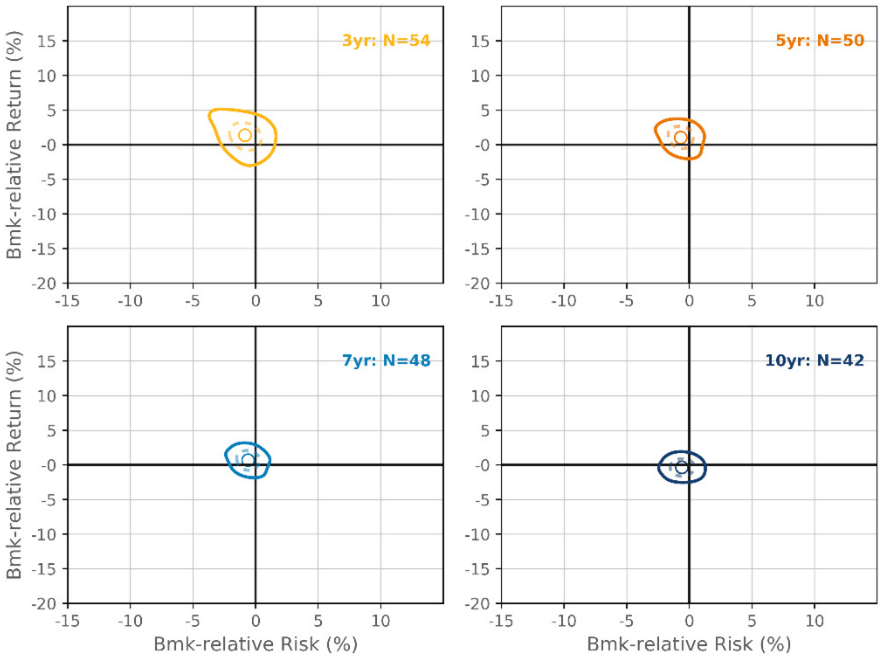
EMERGING MARKET DEBT (LOCAL)



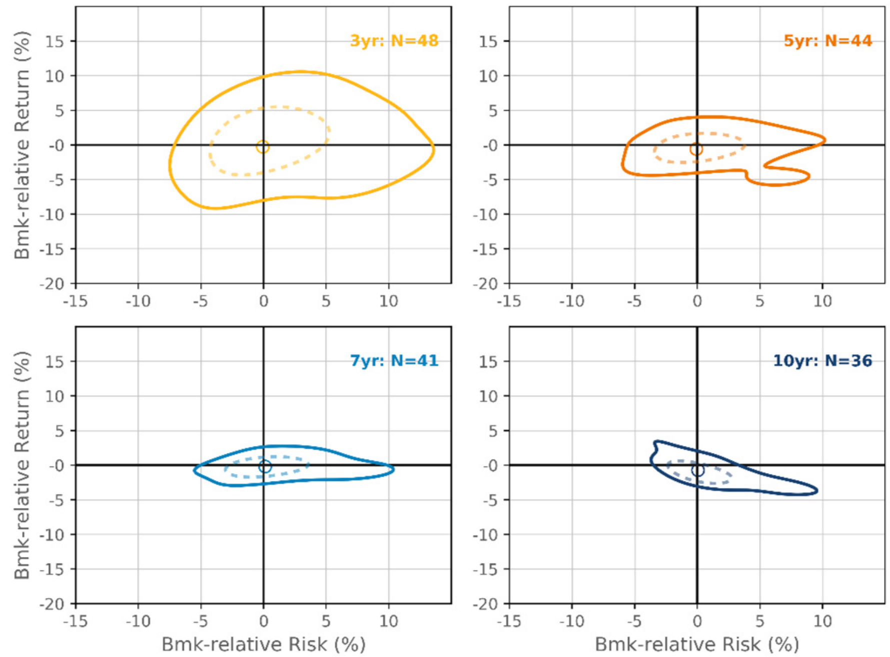
Source: eVestment, Verus, as of 9/30/22, center circle indicates median manager

Other

U.S. REITS



COMMODITIES



Source: eVestment, Verus, as of 9/30/22, center circle indicates median manager

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